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## HIGH SCHOOL DEPARTMENT OF STATE EDUCATIONAL ASSOCIATION.

### PROCEEDINGS OF MEETING HELD AT WILLIAMSPORT.

THE second annual meeting of the High School Department of the Pennsylvania State Educational Association convened in the Williamsport High School Building at 10 a. m., December 27, 1906. The meeting was called to order by the President, G. D. Robb, principal of the Altoona high school. Devotional exercises were conducted by State Superintendent Nathan C. Schaeffer. Miss Carpenter, of Williamsport, sang a solo and responded to an encore.

The first paper on the program was read by Principal C. S. Davis, of Steelton, on

#### ALGEBRA IN THE GRAMMAR GRADES.

This subject could be most satisfactorily discussed by means of getting the consensus of opinion and practice from all the high schools of the state. Since time has not permitted me to be able to tell you what all the high school people of Pennsylvania think about it, necessity compels me to confine this paper to my own opinion and experience while it compels you to pay an even greater penalty.

Algebra in the Grammar grades has been tried with varying success, for its success or failure will be very largely dependent on local conditions and on the adaptability shown in meeting these conditions and in dealing with them. To point out all these varying conditions and the method to be followed in dealing with each would be beyond the powers of the writer, the patience of the audience, and the compass of this paper. The aim will therefore be limited to stating a few advantages to be gained by algebra teaching in the Grammar Grades and to pointing out a few dangers to be avoided.

In Steelton the plan has been followed with a fair measure of success, beginning with the term of 1903–'04. Prior to 1898, under our three-year course, algebra ran through the entire three years. When in '98 our course was extended to four years the time given to algebra was shortened to two years. After five years' experience we found our pupils not strong in algebra as shown in our own work in trigonometry and also in our being somewhat below the entrance requirements of some of the colleges. It was consequently found necessary to strengthen this branch in order to meet both conditions. After a careful study of the situation in both high and grammar grades, it was thought best to begin the subject in the A Grammar grade by somewhat shortening the work there in physiology, thus avoiding an additional period in the always busy A Grammar grade. At the end of the year it was found that the text in physiology could be satisfactorily completed by the Christmas holidays, giving six months to algebra. There it has remained with fairly satisfactory results.

In introducing it into this grade several questions arose for settlement on whose decision depended the probable success or failure of the plan. The first of these naturally was, Are the pupils of that age capable of the reasoning by symbols required in algebra? We have nine years below the high school, though most of the brighter pupils get over the ground in eight

*Reported by Mr. Frank E. Baker, Secretary, principal Greensburg High School.

years. While there might be considerable doubt as to their capacity in the eighth grade, there was little as to the ninth, particularly in view of the fact that many courses call for only eight years below the high school and therefore begin algebra in the first high school year, or the ninth grade. The pupils in this year in such schools may be slightly stronger because probably a smaller number complete the nine grades in eight years. This question of their capacity for reasoning with symbols was interesting, but those of us who at that age were *compelled* to dig or wade through or climb over (select your own figure) the abstractions of mental arithmetic at its worst or best (?) without even symbols to aid will readily agree that there was only one answer to the question. I use the word *compelled* advisedly for those were the days when the rod had not ceased to be an incentive, in fact in some cases nearly the only incentive to study. Experience with us since 1903 has verified this opinion. On discussing the matter with the teachers of that grade they were found unanimously of the opinion that their pupils are sufficiently mature to do the work and further that both teachers and pupils liked the work and were glad to begin it. At first it was feared that the attitude of the pupils might be unfriendly to it but careful inquiry in Steelton has clearly proved what has just been said as to the liking of the pupils for the work in algebra. This is due first of all to the friendly attitude of the teachers toward it and to their efficiency as teachers of the subject. Through their efforts the pupils are led to see how materially it will aid them in their parallel work in arithmetic in the ninth and tenth years as well as in the subjects to be taken up later in the high school—geometry and trigonometry. They like it too because they themselves feel that they are really beginning their high school work and that their success in algebra there will depend largely on how thoroughly they get started in the grammar grade. This feeling on their part is all the stronger because algebra is generally the only subject begun in the last year in the grammar school and largely continued in the high school. Thus its teaching becomes a pleasure to both teachers and pupils.

Another question was, whether this plan would not help to fill in the gap between the grammar grades and the high school, thus avoiding the heavy losses schools usually suffer at this time. This is an old, a new, an ever-present difficulty and many there be that suffer thereby. In Steelton we are fortunate in that our efforts to cultivate a sentiment in favor of completing the course are largely assisted by the attitude of the management of the Pennsylvania Steel Company in giving the preference to our graduates in employing young men at the works and in the offices.

The reasons why so many pupils drop out at the end of the grammar grades are various and differ in different communities but for the purposes of the present discussion we are interested in only two of them: 1st, The beginning of new branches on entering the high school. 2d, The changed conditions in the high school due to the departmental plan, requiring pupils to recite to a number of different teachers, sometimes in as many different rooms.

The teaching of algebra is a corrective of the first difficulty just in so far as the introduction of new branches is concerned as a cause for dropping out at the end of the grammar school career. Formerly on entering the high school our pupils began the study of algebra, Latin, and physical geography, though as to the last modern political geography teaching is an excellent introduction to physical. Since the placing of algebra in the grammar grade and the recent change of physical geography to the second year in the high school, the only new branch in the first year is Latin, thus reducing to a minimum this one cause of stopping school at the close of the grammar school course.

The most effective remedy for the second cause for this difficulty is probably to make at least the A grammar grade more nearly like the high school by adopting the departmental plan in these schools. Where practicable (and again local conditions control possibility of starting and probability of success) the adoption of this plan meets two conditions:

1st. As has been said, it helps to fill in the gap between grammar and high schools by familiarizing pupils wth the plan of reciting different subjects to different teachers probably in different rooms, a matter usually so strange to pupils that its difficulties cause some to look forward to their entering the high school with such dread that they fail to take the step and end their careers at the close of the grammar grades. 2d. The departmental plan in grammar grades will secure better teaching of algebra in these grades than is likely under present conditions, especially where it is desired to retain men in these grades. Somewhere in their school career all pupils should be taught by men, preferably in mathematics. Some districts do so by having a majority of males in the high school faculty, others by employing men if possible in the upper grammar grades. In Steelton both are combined. Of four A and B grammar grade teachers

three are males and of seven in the high school whose teaching is confined strictly to high school work, five are males.

The chief difficulty in securing and holding good men for grammar grades under existing conditions lies in the small salaries paid them in boroughs and smaller cities unless a principalship can be combined with the work of each, an impossibility in most of these places. As a consequence these upper grammar grades become too frequently the stopping place of mediocrity only, or ability's stepping stone to something higher and better. Of the two the able teacher in a school in passing is far preferable to the mediocre teacher in perpetuity. If the departmental plan were in use in these grades, in these days of specializing more of the second group of able teachers would be drawn into such places because the experience would be likely to lead into better departmental places in the high school. At the same time the plan would lighten the burden now carried by the teachers in these grades. Their burden is heavy because of difficulties in dealing with pupils on account of critical physical and mental conditions, and heavy because he is expected to be a specialist in geography, in history, in physiology, in language and grammar, in arithmetic, and now we are asking him to be a specialist in algebra also. The only other place that equals his for all-around work is that of the teacher of a small but ambitious high school. With all these difficulties to contend with at an inadequate salary, it is little wonder that the best teachers in these grades look for something more remunerative either in the profession or out of it, though fortunately for the children if unfortunately for the teachers. Some of the best do remain through choice or because of circumstances they cannot control.

But to come back—the departmental plan would undoubtedly lead in time, as vacancies are filled by specialists, to securing a higher order of teaching algebra as well as of other branches in the grammar grades. Whether the teaching be done by the departmental plan or by the usual plan, when algebra is begun in the grammar school, there should be close relations between the teacher of algebra in the high school and the teacher or teachers of the same subject in the grammar grades. This can be established either directly or through the superintendent, these two being the best judges of the efficiency of the algebra teaching below the high school.

In beginning algebra in the grammar school, several unfavorable conditions should be guarded against.

1. If the departmental plan is not used, then the subject should not be introduced unless every teacher is able to handle the subject successfully. The high school teacher of algebra would prefer to have his pupils come to him knowing little of the subject but alive with desire for it rather than to have them come to him with their interest dulled or dead at the hands of an unskilful teacher.

2. The teachers of algebra in the grammar grades will not succeed if they are slaves to the text. By supplementing here and eliminating or postponing there a too difficult problem or case, he will be most benefiting his pupils by adopting his text to his pupils instead of compelling every pupil to fit the text. The latter would be the old Procrustes over again. This supplemented material as well as that eliminated can be easily adapted to act as an incentive to the brighter pupils who will be glad to do additional supplementary work and delighted to work out problems considered too difficult for the class in general.

3. The grammar school teacher should not be a slave to the course of study. This sentence might have read, He should not be made a slave to the course of study. Each teacher should be made to feel that fair results are to be attained as to method and quantity and attitude of pupil to the subject. But the teacher should be made to feel also that these results are elastic. Our own course reads only that algebra shall be taught for the last six months in the A Grammar grade. You need not be told that the superintendent is in close touch with these teachers and with what they are accomplishing, nor need you be told that the results of this teaching are carefully noted by the teacher of algebra in the high school.

4. It would be a great mistake to place algebra in the A Grammar grade as an additional subject without in some way giving an equivalent relief in this always heavily burdened grade—a necessity for both pupils and teachers. The difficulties of the latter have been referred to and need not be repeated here. The additional burden on the pupils would discourage the weak and tend to increase the dropping out at the close of the grammar school course. Where the departmental plan is used, the burden on the teacher is increased but slightly though that on the pupil is likely to be largely increased unless closely supervised. The wise principal or superintendent will of course endeavor to obviate this difficulty, probably the greatest connected with the subject.

The advantages therefore of algebra in the grammar grades seem to be:

1. It relieves the high school curriculum

but should not do so at the expense of the grammar grades.

2. It is an aid to the pupils in their arithmetic, which it partly parallels.

3. The pupils are enthusiastically in favor of it because they realize its helpfulness in arithmetical reasoning and because they regard it as a real beginning of their high school work.

4. Greatest of all it helps to fill the gap between the grammar and the high school by interesting them in what they consider a distinctively high school branch and by decreasing the number of new subjects to be begun on entering the high school.

5. The departmental plan would increase the probability of success by helping to hold pupils in school for the high school course and by securing better teaching in the grammar grades.

6. A close observance of local conditions is necessary and a careful adapting of the work to these conditions.

The second paper was read by Miss Jane Mathews, head of the department of mathematics of the Altoona high school, on the subject:

### THE AIM AND SCOPE OF THE HIGH SCHOOL COURSE IN MATHEMATICS.

A study of the history of education reveals to us the importance attached to mathematics as a means of education. Ideals of education have constantly changed, but mathematics has always held an honored place in the content of education, and only in these modern, iconoclastic days has the validity of these claims been doubted, and this doubt has been only in certain quarters.

I need not therefore justify the place of mathematics in the school curriculum, and yet I would remind you, in passing, how fundamental are the concepts of number and form. It matters not how they are acquired, they are essential in the most elementary thinking. President Butler puts it thus:

"1. The human mind is so constructed that it must see every perception in a time-relation—in an order—and every perception of an object in a space-relation—as outside or beside our perceiving selves.

"2. These necessary time-relations are reducible to number, and they are studied in arithmetic, algebra, and theory of numbers.

"3. These necessary space-relations are reducible to position and form, and they are studied in geometry."

Dr. Harris, the Nestor of American educational thought, places mathematics and physics in the first of the five great groups of subject matter, by which he would educate the individual so that he may co-operate with his fellows for higher social ends, and that he may have control over the physical world.

Conceding, therefore, the value of mathematics in education, it behooves us to examine the aims to be attained in teaching mathematics whether in the elementary or higher schools. It is well for us occasionally to state these aims, fellow teachers, for how often in the routine of school life are our aims forgotten; how few of us check our work with the ideals to be attained; yet as Beaconsfield puts it—"The secret of success is constancy to purpose."

Much has been claimed for mathematics both from utilitarian and cultural standpoints. The "bread and butter" value of mathematics has often been overestimated. For daily everyday life, we need little algebra, and less geometry and even very little arithmetic; counting, the fundamental operations, a few tables of denominate numbers, a little mensuration, and enough of percentage to calculate simple interest; these are all we need in the actual, non-technical, everyday life. On the cultural side, we have various claims. In the ancient Grecian scheme of education, "Mathematics perfected and made ready for the society of the gods." Herbart made great claims for mathematics, in his psychology, as a means of cultivating the love of truth. By some it is claimed that mathematics develops the religious faculties, by others, that it sharpens the wits and develops business acuteness. Present-day psychologists tell us that these claims are absurd, mental arithmetical power does not presuppose any of these.

It has been accepted however almost as an axiom that mathematics gives training in logical reasoning, and establishes habits of accuracy which are of advantage in the study of other subjects, and in actual life; yet in this day of investigation this formal discipline has come to be doubted in certain quarters.

Some interesting experiments have been made in the Pedagogical Department of Dartmouth College under the direction of Professor F. C. Lewis, to test the claims that the methods of work, and the ideas and forms of reasoning developed by mathematics may be transferred to other regions of thought. Two tests were sent to pupils of the same grade, who had had the same mathematical training, in twenty-four different high schools. One set consisted of originals in geometry, the other of questions in practical reasoning. When the results were examined and tabulated, a list very disastrous to the claims of mathematical culture was obtained. The leaders in

mathematical reasoning were well toward the foot in general reasoning and *vice versa*. From these and some other tests, Professor Lewis arrives at these conclusions: "Training in a subject as mathematics will strengthen the powers of mind for handling a related subject, as astronomy, and not otherwise." "The will may be educated so that one may become characteristically accurate, observant, or attentive, but that depends not upon the content of that particular subject but upon the all important factors of personality, tact, and teaching powers." We may be inclined to doubt the fairness of these tests, for the pupils when working in geometry were working in familiar fields of thought, while in the other test the fields were new, and no extra time was given for the pupils to orient themselves, so to speak. The data presented by Mr. Lewis are, however, interesting and important to teachers of mathematics, and whether we are ready to combat or agree with Mr. Lewis in regard to his conclusions, we should note the importance he places upon the most important factor of the schoolroom—the well equipped, well trained master mind of the teacher; and we should seek in our own work to verify our faith in our subject, and if results show weakness—search the cause.

Let us sum up our aims in teaching mathemathics. We should bring our subject as near to the actual life of the pupil as possible, letting him see that it is worth while studying a subject which correlates with his work in manual training and in physics, which correlates with actual life. We should show to him that a subject, as algebra, is a tool useful, in fact indispensable, in technical education; for without algebra, geometry, and trigonometry, higher mathematics both pure and applied are impossible. These aims should be emphasized at the beginning of the work in mathematics, for when we have made the pupil realize that "neither learning, nor power to acquire learning, but a real love to learn" is what we are aiming for, the battle is won. On the cultural side I am still convinced that the study of mathematics can give the pupil habits of accuracy, rapidity, and attention to detail such as no other subject in the school curriculum has yet been able to do. Through his study of mathematics the pupil obtains ability to conquer difficulties, training in sustained reasoning, and power to recognize the universality of correctly stated laws, and these "furnish hooks on which to hang new experiences and to conquer new problems." These are some of the important effects of mathematical training.

We will now consider the content of secondary mathematics. We are all pretty well agreed as to the subject matter which logically fits into this stage of mathematical training; algebra, geometry, and trigonometry, with some arithmetic are to be found in most courses of study in American high schools. German schools go somewhat farther taking some theory of imaginaries, and of equations, and analytical geometry. English schools do not usually go so far in geometry, being satisfied with the completion of Euclid-plane geometry; though they carry manipulations of identities and equations, both in algebra and trigonometry, much farther than we feel that we have time to do.

In American high schools algebra is usually begun in the ninth grade, following arithmetic which is completed in the eighth; from one and one half to two years are spent on the elements, and work is carried through simultaneous equations or a little beyond. Plane geometry succeeds algebra, and the ground covered is represented by the first five books of any standard text. This is usually all the mathematics the ordinary pupil receives, if however he is preparing for college or for technical school, where solid geometry, trigonometry, and advanced algebra are required, he elects these subjects usually in his senior year.

In most German schools and in many English schools, the subjects of algebra, geometry, and trigonometry are taken parallel and much cross correlation is therefore made. Through the work of John Perry, of England, and of many others, both in this country and in Germany, there is a strong movement toward the unification of the subjects of algebra, geometry, and trigonometry, toward a wider selection of material, and toward correlation with manual training and with science. I shall speak later of the work of Professor Myers, of Chicago University, who seems to have worked out a definite scheme of unification in his University School at Chicago.

Although much good teaching has been done in secondary mathematics in many of our schools, there has been a great deal of very poor work. One of the sources of trouble has been, any one has been thought fit to teach secondary mathematics, no matter how poorly equipped for the work; and any one who has been a bit successful in teaching secondary mathematics has been thought fit to write a text-book on algebra or geometry, no matter how poor a mathematician he may be; the result has been a slavish following of text-books which, in turn, have been full of half truths or glaring errors, and pupils are turned out having wrong ideas in some fields of mathematics,

mechanical in thought, and unable to apply their mathematics to problems of real life. Specially trained teachers, with a broad outlook upon allied sciences and higher mathematics should be insisted upon for work in mathematics, and only when we can have these teachers shall we see the results demanded of us by the world. The shrewdness of Germany in the choice and preparation of its teaching body is a lesson that American smartness is slow in acquiring.

Algebra should be taught with a threefold purpose. 1st, That it may become a valuable tool in the work of physics, trigonometry, and higher mathematics; power to formulate algebraic expressions from stated conditions, power to manipulate expressions, *i. e.*, to juggle equations should be developed through constant drills, and habits of accuracy should be established through constant checking of the work. 2d, Algebra should give mental discipline, the logical faculty should constantly be appealed to, and the pupil made to appreciate the wider scope of this general arithmetic. I cannot help quoting from our Gentle Autocrat. "I was just going to say, when I was interrupted that one of the many ways of classifying minds is under the heads of mathematical and algebraic intellects. All economical and practical wisdom is an expression or variation of the following arithmetical formula, $2+2=4$. Every philosophical proposition has the more general character of the expression $a+b=c$. We are mere operatives, empirics, and egotists until we learn to think in letters instead of figures." 3d, Algebra should be taught in such a way that pupils are inspired with a desire for more knowledge. Interest should be awakened and sustained in the search for the unknown, which is indeed the game of life; when we have aroused this in our pupils, we have awakened that self-activity which will conquer in the end, despite of difficulties.

Interest in the work can be aroused by showing how much easier some problem which has been worked in arithmetic can be worked in algebra. In nine cases out of ten, pupils will employ the algebraic, in preference to the arithmetic method when once they see the way. Then let them do it even though the class be one in arithmetic. The answer is what the world demands, by the shortest and quickest method. Another device which has given good results in my own experience is that of having pupils make up problems. Let them make up problems similar to those that have given them trouble and they have no further trouble with those problems. A step farther is what I am still trying to take, to have them state genuine problems pertaining to their work or play.

Pupils come to recognize certain symmetry and homogeneity of form in many algebraic expressions, and to feel uncomfortable when it is lacking where it seems it ought to be. Checks by symmetry and homogeneity should be early employed in the work.

Another important source of interest is graph work. Some claim it is the fad of the hour. Well, what if it is? It is a fad that has extended to every branch of the world's work where data must be given quickly and concisely; hardly a newspaper or magazine but has some graph work in it, employed by the writer to assemble his facts so that they may catch the eye of the busy man; therefore the greater reason that we employ the graph in our work, thus making the pupils familiar with the conditions for making and the methods of reading the graph. The use of squared paper to show the products of binomials can come very early in the work of algebra; this construction work shows the one to one relationship between algebra and geometry, a most important relation which should be emphasized very early in the work so that the pupil will come to realize that algebra, geometry, and trigonometry are only different tools for working towards the same end. In beginning graph work in a class in algebra, I should give some introductory work before the regular work in plotting equations, so that the pupils may recognize the beauty and value of the method. Temperature data, weather reports, statistics, are easily accessible through the kindness of the government departments and the Representative at Washington. It may be of interest to tell our own experience in beginning graph work, this term. Our heating system was giving trouble just at this time, the pupils suffered from cold in one room and from too much heat in others, we decided to graph the temperature of twenty-four rooms, hourly, for one week, and students from the various classes were assigned different rooms to collect data. Good results were obtained for interest was aroused among the pupils, since their work was to be submitted to the Superintendent and to the representative of the heating system; I am confident each pupil who did the work realized the genuineness of the method. Graph work need not take much time after the pupils once understand the method, a few moments devoted to the work in the recitation are sufficient.

We will consider for a moment the subject of geometry; no subject is more helpful in getting our minds to work logically and smoothly, and no subject is more en-

joyed when taken at the proper time, at the psychological moment, than demonstrative geometry, and yet too many pupils are forced to take up the work when the mind is too immature, and what groanings unutterable do we hear. Intuition has played a strong part in the mental life of the child heretofore, and now to banish it, and from certain axioms alone to deduce certain other truths, *i. e.*, prove theorems, is a most strange and bewildering process; even a mature mind unaccustomed to deductive reasoning will stumble along blindly for some time before light dawns. Pupils get the idea that we are juggling with them, when we attempt to prove that all straight angles are equal when it is so obvious, that a line is a straight line when it hasn't been drawn straight, etc., etc. I am more and more convinced that more progress is made if the regular work in demonstrative geometry is preceded by some weeks of work with the compasses and ruler, and with squared paper. Let the pupil orient himself, so to speak, before he begins the task of rigid demonstration. Let him learn definitions, do simple constructions, and verify certain evident geometric truths by actual measurements before he begins the regular work, then when he has once entered the kingdom of demonstrative geometry, let him stick closely to his axioms and definitions and learn what a logical superstructure he may build on these foundations through data given.

A slavish following of text will never develop a good geometer, however excellent the sequence may be. In my own work, I find it well to have the pupils question the text at times. I ask my class, say in solid geometry, Has not the author taken too much for granted, as for example, in the theorem,—"If one of two parallels is perpendicular to a plane the other is also ?" Many authors assume the second of the two parallels cuts the plane; I ask my class, "How do you know that this is true?," and often I will get a pretty good proof of the theorem, "If one of two parallels cuts a plane, the other will also." A certain amount of original work done right at the moment is very helpful to the interest and briskness of the recitation, the clash of minds promotes mental growth more than any other exercise. It is often very helpful to have some extra work on hand for the quicker and brighter minds of the class; they ought to be made to feel they are expected to do more than the rank and file, and do it in all humility. A little history of the growth of geometry is often helpful to the interest of the class; when a pupil realizes that most of plane geometry grew up around three famous problems, the duplication of the cube, the trisection of the angle, and the quadrature of the circle, which baffled the ancient Greek philosophers and which only in the last half of the last century have been proved to be impossible, according to the conditions imposed upon them; when he realizes that the logical sequence of all the work in plane geometry is completed by the expression for the area of the circle, that this is the keystone of plane geometry, then it is that demonstrative geometry no longer is a mass of unrelated truths but a logical whole.

I have found it interesting, and valuable as a review to have the pupils make family trees, so to speak, for certain important theorems , thereby getting back to the axioms which are lost sight of so often and yet which are most fundamental.

A word as to text-books of geometry; there are many good books at hand, with well arranged logical sequences of theorems, with much, in fact often too much material from which to choose, yet I will predict that within the next ten years there will be a great change in text because the public will demand it. The coming book will consist of two parts, the first, a preliminary and practical part where the concepts will be developed, and constructions and geometric applications will be made; the second will be theoretic or demonstrative and will be more carefully developed than some of our present-day texts. There is an English text by Barnard and Child which contains much valuable material, showing the effect of the Perry movement in England; but it is like most English texts unsuitable to our American class rooms.

I can only touch on the method of limits, though it deserves full discussion. I will, however, say in passing, college instructors tell us that we are teaching some remarkable things about limits, half truths, and sometimes untruths, which we hammer so thoroughly into the minds of our pupils that it takes the college instructor half his time to hammer it out again so that the rational theory of limits may be given its proper place in Calculus. I shall be glad if our newly organized section of mathematics and science will take this topic up for discussion, for it is a topic of the day.

In conclusion, I wish to come back to the matter of the unification of algebra, geometry, and trigonometry. It is predicted that it is only a matter of time when these subjects will be correlated into a unified whole in our best secondary schools.

I have been much interested in the outline of work, given by Professor Myers in the January, 1906, number of the School Review. In this article, Professor Myers shows the weakness of the old "tandem"

method and then gives a brief outline of four years' work. In the first year, the work is organized around algebra, correlation with geometry is made through drawing to a scale and comparison of similar triangles, correlation with physics is made through the laws of parallel forces and the laws of moments of forces. A beginning of logarithms is made this year.

The second year's work is organized about geometry; building on the conceptional work of the first year, the work of this year is demonstrative and covers plane geometry; throughout the work, an extensive use of algebraic notation and methods is made, and trigonometry of the right triangle is begun.

The third year is given to plane trigonometry with its application, and to advanced algebra.

The fourth year which is elective, gives a course in solid geometry, and one in college algebra.

The outline is given in much more detail than I have indicated and I shall be glad to hear of its success. There is a somewhat similar course in practical mathemathetics in the Academy of the North Western University at Evanston, Ill., though it does not seem to me to be as well worked out. One strong point in each of these courses is the emphasis on the practical application, the lack of which is the crying weakness in our present work.

Just a word in conclusion in regard to our own plans along this line. We are planning to make the mathematics of our Industrial Course more practical than that of our other courses. We are emphasizing the work in algebra the first year, and expect, in the second year, to do practical work in geometry, constructions, graphs and solution of problems from the laboratory and shop; and I wish to say if we find it as successful as we hope, this work will not be confined to the Industrial Course.

The general discussion on the two subjects of the first session was opened by State Superintendent Schaeffer. In reply to a point raised by the author of the first paper, he quoted William T. Harris as saying that the best teacher of algebra he had ever known was a woman. Dr. Schaeffer maintained that algebra is the easiest subject taught in the public schools, that the thinking by means of symbols is not new, as the pupil has to think in symbols from the time when he first begins to read, and that it is easier to teach a boy the fundamentals of algebra than to make him a good speller. The chief difficulty in teaching algebra is that the text-books are too difficult and are not written from a pedogogical view-point. He objected to the faculty system in the grammar school, on the basis that the teacher who teaches nothing but mathematics often becomes narrow and has no sympathy for the boy of non-mathematical mind. He expressed the hope that high schools might be emancipated from the domination of colleges, saying that college entrance requirements have been placed too high, especially in mathematics and that those who make out college entrance examinations have certain quirks which the candidate must "get on to." He referred to the demand of the Child Labor Congress that the age limit be raised to sixteen years. In connection with this he quoted several eminent educators who hold that a large number of our high school students had better be at other work, and suggested that the reconciling of these opposite views might drive us to the founding of Trade Schools.

Principal J. P. Breidinger, of Wilkesbarre, expressed a doubt as to the efficacy of a too close correlation of grammar school and high school work as a means of holding pupils in school after finishing the grammar school

Principal H. J. Hopkins, of Titusville, called attention to the fact that most public schools give but eight years' work before the high school while at Steelton, the course of study is outlined for nine years. He indicated a course of study which requires each student to take algebra during the first one and one half years of his course and allows a half-year of advanced algebra to those preparing for technical schools. He thinks that it no more difficult to prepare students for college in algebra than in any other subject. To him, the problem is to get something that will take the place of algebra for those students who expect to stay in the high school but a year or two.

Principal Arnold, of Shamokin, asked how high schools are to meet the requirements of such technical schools as Sibley College of Cornell University.

Mr. J. P. Breidinger explained how this is accomplished at Wilkesbarre.

Mr. J. F. Adams, of Millersburg, stated that where a separate text has been used, the study of algebra in the grammar schools has proved a failure. He believes that some of the newer texts in arithmetic have solved the problem by introducing some of the simpler algebraic operations.

Mr. P. M. Dysant, of Pittsburg, complained of the difficulty of meeting college entrance requirements and expressed the fear that high schools would be compelled either to give up the attempt or else give up the ideal of a well-balanced course.

Principal Frank E. Baker, of Greensburg,

suggested that the solution of the problem of the over-crowded high school course does not lie along the line of crowding more work down into the grammar school, which already has all it can well do but rather along the line of refusing to do some of the work that the colleges are asking us to do. Instead of complaining against college entrance requirements let us get together in a united effort to make a well-balanced high school course. The colleges would soon feel the need of our product more than we would feel the need of a place to send it, and the united effort would soon result in more rational requirements on the part of colleges.

Principal A. B. Wallize, of Milton, comforted those present by telling of the difficulties that the preparatory schools have in preparing their boys to enter some of the colleges.

At the close of the general discussion, Chairman G. D. Robb announced the following committees:

Resolutions—H. D. Hopkins, Titusville; T. E. Garber and Miss Ella Burley, Altoona.

Auditing Committee—J. E. Wagner, Bellefonte; T. L. Brooks and S. M. Robb.

Nominations—C. S. Davis, Steelton; W. L. Smith, Allegheny; A. N. Couser, Sunbury; Mr. Arnold, Shamokin; J. E. Wagner, Bellefonte.

At the afternoon session of the first day, Dr. Nathan C. Schaeffer delivered an inspiring address on "Relation of the Peace Movement to the Teaching of History in Our Public Schools." He stated to the Secretary that he has delivered this address several times, but has not yet given it for publication.

Mr. P. M. Dysart, head of the department of Physics of the Pittsburg Central High School, read a paper on *The Aim and Purpose of the High School Course in Physics.*

## AIM AND PURPOSE OF HIGH SCHOOL COURSE IN PHYSICS.

I confess that I display much temerity in entering upon the discussion of so general a topic as the one that has been assigned to me, for my high school teaching experience has been limited to one school. I feel that the views of one who has had experience in teaching in high schools of various grades and in different parts of the state would be of more value than mine. However, I am convinced that the same aims and purposes should be in the mind of every physics teacher, but their relative importance is certainly different in schools and communities of varying types.

In order that the standpoint from which my impressions have been obtained may be clear to you, I shall crave your indulgence for a few moments while I briefly describe the position occupied by physics in the course of study of the Academical Department of the Pittsburg High School. Physics is required of all pupils in the third year of the course, English and elocution are the only other required subjects during this year. At the time of their entrance upon the third year of the course, all pupils have had one year of Algebra in the high school—some work is done in algebra in the grammar grade—one year of Plane Geometry, and somewhat less than half the pupils have taken one year of Chemistry. The number studying physics this year is about 170, almost equally divided as to sex; for recitation purposes, these pupils are divided into five sections, for laboratory, into nine, and for lecture, into two. There is a half-year elective course in Electricity and Magnetism given in the fourth school year, about thirty pupils, almost all boys, selecting this course each year.

It has seemed best to discuss the subject under two main headings: 1, Aims and purposes applying to any selection of subject matter that may be made; and 2, Principles to be applied in the selection of the subject matter of the course.

An attempt has been made to arrange the various subdivisions in order of importance, but I do not feel obliged to defend this order in all its details and am quite willing to admit that the relative importance of the various aims to be mentioned is much affected by variations in the curricula of the schools and in the mental types of the pupils under instruction.

In my list of purposes I would place first of all the teaching of the meaning and value of a real mental grasp or comprehension of the subject studied. An adequate comprehension of a physical law involves appreciation of its relationship to other laws and principles, knowledge of some of its applications to everyday life, and ability to apply the law to numerical problems, not only to those in which the application of the law is easy and obvious, but also to problems in which the application is not at first sight apparent.

For example, a real comprehension of the work law of machines requires a knowledge of its relationship to the principle of conservation of energy, of some of its very numerous practical applications, of its use in solving numerical problems concerning various simple machines and a few combinations of machines. So far as the study of this law is concerned, the question of the method of the production of differences in the distances through which the two forces act is of no consequence. Indeed, in be-

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ginning the discussion of this law, it is a good plan to conceal the mechanism of the apparatus being studied in order that the pupil's thought may be concentrated upon the relations of force and distance; since it is with these, alone, that the law is concerned. Of course, it is, in general, desirable to explain the mechanism of the apparatus a little later.

One of the chief difficulties in the way of the realization of the ideal just stated is the great preponderance of memory subjects in the course of study selected by many pupils. The habit of verbal memorizing has become so firmly fixed in the minds of these students as to make reasoning of the mathematical or scientific type almost impossible. Our system of grading and promotion passes these pupils in mathematical subjects such as Algebra and Geometry without their having obtained a real knowledge of either subject.

In the solution of most problems, a complete logical explanation should be insisted upon. It is much to be regretted that the art of logical solution of problems that was formerly so well taught in oral arithmetic is no longer considered worthy of attention in the elementary schools. It is too late to begin the teaching of this art in the third year of the high school course, and yet the physics teacher must attempt the task; for arithmetical processes are, for the most part, just as little comprehended by these students as are algebraic and geometrical ones. In their view, Arithmetic comprises a series of unrelated schemes for the solution of problems, each scheme being thought of as a process of—for example—multiplying *A* by *B*, taking half the product, dividing this by *C*, and—presto! there is the answer. To ask why this process brings the answer is regarded either as a piece of impertinence or as a sign of incipient paresis.

"Why," such pupils say or think, "the book says that is the way to get the answer, why should any rational creature want to know any more about the matter?" To a mind of this type, the chief difficulty in arithmetic lies in finding the proper classification of the problem. Should a misguided text-book writer or teacher slip in a problem that will not fit into any one of the pigeon-holes provided, of course the student does not get the problem, but it is not his fault, *oh no!* for "We never had one like that before, teacher."

In presenting our subject, the existence of the mental attitude just portrayed should be constantly borne in mind, and every effort should be made to combat it. To return to the subject of machines for an illustration, most pupils would find it less difficult to memorize a special law for each of the simple machines than to learn to apply a general law to all types, but the use of the first method is a step backward. It encourages the very tendency to unthinking application of dimly comprehended laws that it is our duty to discountenance.

The second aim should be to train in the scientific method. This training is to be obtained chiefly through laboratory work, but its acquisition is much aided by a certain amount of study of the great pioneers in the development of physical science. A consideration of Gallileo's methods of investigation is especially valuable, since it can be brought in at the very beginning of the course.

The great importance of measurement in physical science should be emphasized. Each pupil should be got to see clearly that every measurement is more or less in error. The purely abstract and ideal character of geometry and of many parts of arithmetic should then be evident to the student. The teacher should demonstrate the absurdity of retaining in final results more figures than there were in the least accurate original measurements, and should then rigidly enforce the rules for number of figures in all the laboratory work.

Training in the scientific method necessarily implies training in habits of complete and accurate observation, and involves the acquisition of some skill in plotting and interpreting graphs.

I would place, third, the gaining of a comprehensive view of the subject of physics, *i. e.*, of the interrelations of the various parts of the subject and of their common dependence upon the fundamental principle of physics, the "conservation of energy" law. The use of some form of outline of the subject is a great aid in reaching the desired end.

Then, our students should gain some knowledge of the relation in which physics stands to other sciences. The connections between physics and chemistry, astronomy, and meteorology are especially strong, and, therefore merit considerable attention.

Division four, a knowledge of the meaning and use of the simpler laws expressing relations of physical quantities, has been, to a certain extent, anticipated by the discussion of division one, but, nevertheless, is worthy of separate mention. Careful and repeated treatment of simple direct and inverse proportion and proportion to the square and square root is necessary, if the student is to gain an adequate conception of the meaning of these relations. The relations should be treated logically, not algebraically, nor—worst of all—should the current geometrical treatment be used.

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For example, the pupil should be required to solve a problem involving Boyle's law thus: The pressure in the second case is 25/3 of that in the first case, therefore, since volume and pressure are inversely proportional, the volume in the second case is the reciprocal of 25/3, 1 divided by 25/3, 25/3 inverted—as you please, or 3/25 of the volume in the first case, 3/25 of 100 c.c., or 12 c.c. He should not be permitted to use the $V/V'$ equals $P'/P$ or the $V:V'::P':P$ method.

Fifth, efficiency in the use of algebra for the solution of physical problems should be acquired. Some physical laws should be stated as equations, and problems involving these laws solved by algebraic methods. However, algebra is a tool that should be sparingly used; for, to pupils strong in verbal memory and weak in reasoning powers, algebra is a kind of mathematical magic. "If you wave the magician's wand in the right way and pronounce the proper cabalistic word, behold, the answer appears. If the trick fails, try another motion of the wand and a different charm, and perhaps the answer will come this time." That is many a pupil's philosophy or algebra.

Sixth, training in the use of lines to represent directed quantities, in other words, in the elementary principles of vector analysis. If a little care is taken in the treatment of the composition and resolution of velocities and of force, topics almost invariably included in the high school course, students may be made to see that the methods used in dealing with these quantities are applicable to any directed quantities, whatsoever.

I shall now devote a very few minutes to the discussion of the second division of the subject: Guiding Principles in the Choice of Subject Matter.

First, all divisions of the subject should be represented in the course, each in proportion to its importance. All will agree, I am confident, that mechanics is the most important division, not only on account of its great intrinsic value, but also on account of the dependence of other divisions of the subject upon it. Then, too, few will deny that sound is of the least importance. But, of the relative importance of electricity, light, and heat, there is much room for argument. I am quite ready to admit that the proper order of stress depends largely upon local conditions. In our own school we give somewhat less time to electricity—and magnetism—than we should, did we not have an elective course in that division of the subject, during the first half of the following year.

Second, since there is time for adequate treatment of but few laws, only those of wide application should be selected for discussion. There seems to me to be no valid objection to securing and maintaining substantial uniformity in the laws to be treated in the high school physics course throughout the country, but variations in the personality of the teacher, in the curriculum, equipment, and environment of the school make desirable and, indeed, necessary, the greatest freedom in the choice of methods to be used in presenting, illustrating, and correlating the laws selected.

Third, if I may be permitted to state a negative principle, it is to avoid including in the course much description of machinery. We do not wish to turn out pupils with memories well stored with mental images of machines, images that will soon become blurred and hopelessly confused, but pupils with memories holding tenaciously a few general laws, and with minds well trained to apply these laws. Moreover, machines soon become obsolete, but the laws are for all time.

In conclusion, I wish to make clear that I am aware that some teachers are fortunate enough to have the instruction of pupils who already know the worthlessness of verbal memory in scientific studies, who comprehend what understanding a subject implies, to whom—for example— the statement that volume is inversely proportional to pressure is more than a meaningless succession of words, to be dutifully committed and recited parrot-fashion to the teacher—pupils to whom the study of arithmetic, algebra and geometry has given real power. The task of these teachers is an easy and delightful one .

Others, less fortunate, can pick out a few of their pupils of whom the above-mentioned excellent things may be said, but the majority come to us with the idea that the study of physics consists chiefly in committing the words of the text-book. To be sure, most of these pupils have heard that there are numerical problems to be solved, but they expect that the expedient tried with more or less success in arithmetic and algebra, namely, that of copying most of the problems from some other pupil's paper, and then trying to remember that first, you squared $A$, then divided by one-third of $B$, subtracted $C$, and this was the answer, so that should the teacher assign a similar problem in class, one might have some hope of being able to solve it—this expedient, I repeat, is expected to serve in physics.

The teacher's first duty to pupils of this class is to point out to them the absolute falsity of their ideas of how to study physics, and then so to frame his questions that no pupil that persists in the use of these vicious methods shall ever attain a respec-

table grade, or stand the most remote chance of being passed in the final examination—assuming that he be allowed to take this examination at all. As a general rule, grades should be given only upon work that is done under the teacher's supervision; for in this case only can the work be safely assumed to be the pupil's own.

Last of all, though most important of all, I shall mention the training in honesty and self-reliance that every course in physics should give. I care not, if the accomplishment of this end be obtained at the expense of a reduction of the quantity of subject-matter by one fourth or, even, by one half, it is worth the sacrifice; for no price can be set on training of this kind. In this connection, I make bold to state my conviction that the simultaneous method of conducting laboratory work, the method in vogue in secondary schools, provides an excellent training in dishonesty. I do not need to specify my reasons for this belief, every teacher knows what they are. We all know that the individual method of conducting laboratory work avoids giving this pernicious kind of training, besides having other advantages, but few of us have courage to insist upon its adoption.

I hope I have not seemed too dogmatic in stating my opinions. By no means do I hold them to be infallible. Had my work been in a smaller school, or in one in which physics is an elective subject, or in a community whose paramount interests lie in intellectual rather than in industrial pursuits, my views of the relative importance of the "Aims and Purposes of the High School Course in Physics" might well have been quite different from what they now are.

Mr. Charles S. Webb, of the department of science of the Franklin high school, considered, *The Aim and Purpose of the High School Course in Chemistry.*

### THE AIM AND PURPOSE OF THE HIGH SCHOOL SCIENCE COURSE.

So far as one may judge from the utterances of teachers of science and the authors of text-books, the teaching of science is yet in a state of uncertainty and unrest. The latest recruit in the high school curriculum seems not yet to have made for itself a definite place and office.

One finds in the teaching of science much less of uniformity than in the other subjects of the course. The content of the subject matter, the method of instruction, the proportion of time allotted, and the importance attached to the subject vary widely according to the individual opinions of authors and teachers and superintendents. We differ widely in the extent to which we teach through the use of the laboratory. Between the teacher who teaches almost exclusively from the viewpoint of pure science, and one who teaches fact and theory chiefly as necessary steps toward their practical applications, is almost as great disparity as between mathematics and manual training Even among those teachers who are agreed upon the question of attitude toward pure science and utility, there is much disagreement as to the importance and the proportion of time which shall be given to the theoretical and the descriptive portions of the subject. There are many who contend that the training in chemistry which is most valuable to the boy who must go from the high school directly into productive activities, is not identical with that required for admission to the colleges.

These considerations, if they represent at all correctly present conditions in science teaching, furnish the justification for further discussion of the purpose of science in the high school curriculum.

While uniformity in the teaching of chemistry or of any other study may be neither possible nor desirable, nevertheless a fuller consideration and a broader recognition of the functions of science study would, without doubt, have a unifying and beneficial influence. If the study of chemistry serves any specific educational end better than does any other study, if it tends especially toward the development of any valuable human qualities, mental or moral, if it serves in any special way the promotion of good citizenship, and the prevention of human ills, physical or social, the recognition of these special functions of chemistry as an educational element will have a determining influence upon the content and method of our teaching, and will conduce to its unity and vitality. We shall teach the better for having a conscious purpose in our teaching.

Without assuming to pronounce didactically upon the educational function of science teaching, I would suggest tentatively for your consideration the following proposition: The study of science in so far as its value stands out especially from that of other study, is valuable in the large sense, in that it develops the habit and ability of open-minded investigation and of drawing sound discriminating conclusions in the presence of new experiences; and in a narrower but vitally important sense, in that it furnishes practical knowledge and skill which is likely to be of direct value in the doing of the world's work.

The study of mathematics while it concerns itself with the development of the logical faculty, specifically rejects the evidence of the senses, and draws its conclu-

sions always from accepted generalizations. The unquestioned value of history study in developing the discriminating faculty varies according as it is pursued with the scientific method and spirit. The other departments of high school study are concerned with the development of the discriminating faculty in its æsthetic rather than its practical phases. Science occupies a unique position in that its chief business is observation and the forming of correct conclusions from the evidence supplied by the senses.

If it is true that scientific study is especially adapted to serve these ends, how much more effectively will we teach if we keep the ends constantly in mind.! How much less shall we accomplish if we keep our attention only upon the brick and mortar of the structure we build!

President Eliot two or three years ago in a paper which we all remember, somewhat disturbed those of us who were too complacent in regard to our schools, by pointing out a host of evils which a century of the public school had failed to correct or prevent. And we have no quarrel with President Eliot's criticism. It is an excellent viewpoint for the teacher, which looks upon society as in a large degree the product of the school. If its actions are unintelligent, if its judgments are unsound, the alert teacher looks to his school, and asks wherein a wiser teaching would have prevented these defects.

Any teaching of science must have signally failed, which has not developed the habit of honesty and persistency in investigation and the love and respect for truth however contrary it may prove to preconceived ideas. One can hardly conceive of qualities more valuable than these two if carried into the large activities of life. If a large majority of the coming citizens sent forth by the high school should retain and exercise these qualities as a part of their very character, infidelity to trust in business, and sectional selfishness in politics, and bigotry in religion would become obsolete. It would seem that no labor or pains would be too great that should succeed in making habitual in the student, these fundamental qualities of the scientist,—honesty and persistency in investigation, and respect for the truth. And if the development of these habits is so important, their importance will help to determine in some measure the character and content of our teaching; we shall emphasize the laboratory way of answering questions, which is the student's practice in investigation, and instead of always prescribing for him the minutest details of his experiments, we shall leave more and more as fast as it is possible, to his own resourcefulness.

One of the most distinctive characteristics of the really educated man is his ability to discriminate, his unwillingness to accept conclusions founded upon insufficient evidence, in a word the sanity of his judgment. What a triumph for public education if it might so fortify the rising generation with correct habits of discrimination that the power of the demagogue, the false allurements of extravagance and display, and the pitiful faith in the charlatan and the nostrum vender should become impossible.

Is not this one of the aims of our science teaching—especially in Chemistry? In a time when sham is so common, when foods are adulterated, and ignorant people are duped with worthless and worse patent medicines, and the people are gulled in a hundred ways, is it not possible that our high school course might with profit be so extended or amended as to make our students somewhat more intelligent along lines of more directly practical value, of which I shall speak a little later. But even if this is inexpedient, our teaching has not been quite successful if it has not impressed the future men and women with the wisdom of putting their confidence, in regard to matters beyond their own knowledge and ability, in men of scientific training—a training whose reliability they have learned to respect from their own knowledge of the thoroughness of its methods.

But even in the many students who have neither the native ability nor the inclination for work of personal investigation, science study may yet develop perhaps the most valuable attribute of a scientist or a citizen, the open unprejudiced mind. One of the distinctive features of science study, the feature which offers to the student the greatest pique to his ambition or his greatest discouragement is the omnipresent incompleteness of its results. One may fairly feel that he has acquired the matter of plane geometry with some degree of completeness. In varying degrees this is true of most of the elementary studies. At the very outset and on all sides the beginner in science meets questions which he can not solve, which have never been solved. He never has the feeling that he has completely learned his lesson. But perhaps this new experience is one of the greatest values of our science—to teach men and women that no field of knowledge is closed and locked and its key deposited in a text-book as a conquest of the past, that to-day's confident beliefs and theories are to-morrow's fallacies, that the future will always hold rewards for ambitious learners. No study is so well adapted to promote the frank quest and the open mind as science.

But there is no more important, no more absolutely essential feature of education than that which fits a boy to do his share in the world's work. It would seem possible to present a good argument in favor of the state's providing for every boy and girl instruction which would fit them to do some useful work in the world with intelligence and skill. Certainly, in so far as, without disturbing the machinery of our schools, we can help provide utilitarian instruction, we may well seek all opportunities to do so. There is hardly any department of human activity, where a knowledge of the practical applications and possibilities of chemistry will not enhance the ability and usefulness of the worker, and thus promote his advancement. Certainly we shall make a mistake if we fail to inspire our students with some knowledge of the tremendous advance of the world in industry and human comforts through the practical application of chemical discovery, and with an ambition to take some part in further conquest in this field. This is the phase of our science especially in harmony with our splendid American genius for industrial development.

In the aims of chemistry teaching so far suggested, there has been little demand for the teaching of theory. Does the aim of chemistry teaching as suggested in this paper call for any teaching of chemical theory? In so far as chemical laws of behavior serve to aid the student in classifying and interpreting his results they help him to be a better investigator. In so far as chemical theories serve to harmonize and explain his facts and observation, and *he* feels their necessity, we shall do well to satisfy his questionings with the best answers that have been given; but there is in my mind little question that much of the chemical theory taught in the high school is merely so much additional undigested text, which might better have been omitted except by the more able pupils.

If the individual teacher, or superintendent, were free to regulate his teaching by his judgment of its value to his pupils as a preparation for life, the problem would be a simple one and the solution would be early; but unfortunately he serves two masters. He must fit many for life and a few for college. He can not ignore college preparatory work. His standing as a teacher and that of his school impel him to make good in that department. If he could follow his duty to the majority of his students, he would probably so select his subject matter as to make them able to answer the chemical questions of every-day life, the chemistry of air, water, foods, fuels, combustion, fermentation and decay, life processes, etc.; the chemistry of industrial processes, photography printing, dyeing, manufacturing,—subjects chosen for their practical value rather than as illustrations of chemical principles. Of many of these subjects, vitally important in practical life, the students who have finished our high school courses in chemistry have but the vaguest knowledge. Of course the teaching of them demands a wider preparation than many of us have had, but it is worth considering, whether a high school course in chemistry might not be devised more general and less theoretical in its nature which the college should accept as a foundation for more exact and more theoretical work.

I think it is a fair proposition that in a well arranged, united scheme of primary, secondary and collegiate education, the primary and secondary courses should be such as best fit students for life and unhampered by considerations of future academic work, and that such courses if well pursued under satisfactory conditions should qualify the graduate for admission to college. Such a condition is far from realization when students admitted to college with credit for high school in chemistry are put into the same chemistry classes with students who do not know a retort from a Bunsen burner.

It is unnecessary to say that the suggestions in this paper lay no claim to originality. Nearly all the contentions herein have been frequently maintained in the past few years. That we should be animated in our teaching by a conscious purpose; that we may profitably study life in our community and state and nation, and direct our teaching so that it shall prepare for and correct and enrich that life; and finally that our greatest need as seen from the science teacher's standpoint is such a unification of our whole educational scheme as shall save somewhat of the waste caused by the present relation of the high school curriculum to that of the college.

In the general discussion of these subjects L. J. Ulmer, of Williamsport, suggested that the teaching of physics could be greatly simplified by placing less emphasis on specific formulæ and by a wider application of general laws. He illustrated his point by showing that all simple machines can be explained and all problems under the different simple machines can be solved by use of the general law, "Effort times distance equals resistance times distance."

Mr. C. S. Webb, of Franklin, advocated the use of some original experiments, in which specific directions for the students use are dispensed with.

Mr. J. P. Breidinger thinks that science teachers are expecting too much of the teachers of mathematics. The teacher of mathematics can not be required to train his pupils in the mathematical language of the different sciences.

Superintendent Dean, of Mount Carmel, Principal Reed, of Scottdale, and Principal Hopkins, of Titusville, all maintained that science teaching in our high schools is being made too technical.

Principal Baker, of Greensburg, made a plea that more time be given to the natural sciences instead of an over-emphasis of the physical sciences.

Principal H. N. Couser, of Sunbury, endorsed this view of the matter.

The first evening session was taken up by the address of Dr. Paul H. Hanus, of Harvard University, on "The Modern High School." The following is a brief abstract of his views on this subject: Secondary education is not a thing apart from the rest of the school system. There is no chasm between the pupil's development in the grammar school and his development in the high school. Secondary education simply means the last four or five years of the pupil's public school education. The aim of elementary education is to open the outer world to the pupil. These years of elementary education are most important to those pupils only who end their schooling with them. The high school period is the time when the student gains stability, when his habits and interests become fixed—his interests and capacities are developed and made subservient to life's serious problems. In treating of the characteristics of the modern high school which should adapt it to this development, educational aims are divided into three classes; cultural, vocational, and social or civic. Culture used to be synonomous with classical scholarship. Since the Renaissance, civilization has so advanced that each age has its own sources of culture. Culture means the capacity to appreciate and deal with the resources and problems of modern life. Classical scholarship is not attainable in secondary schools, and, if it were, it would not put the pupil abreast modern problems. If we want students to comprehend the life of ancient nations have them make a serious study of the history of these nations and of good translations of the classics. Manual training is pursued in most schools for the purpose of general culture: its vocational value has ordinarily been regarded as merely incidental. The schools of the past have done little to develop a vocational aim. This must be done, but it must be done unobtrusively. It can be done by inviting in the successful banker, manufacturer, or engineer, but care must be taken that only altruistic men are invited. Through the programme of studies we can also point toward vocations in specific ways. It must be remembered, however, that the course of study, that manufactures predestined undertakers or serves as a mere clerk factory has no place in the modern high school. The social aim deals with the affairs of the community, state and nation. A true patriotism and love of democracy may be inspired by history. The social aim depends much on the keeping of the school and community in harmony. The teacher must be a good citizen. The school does not prepare for life, but is a part of life. To a certain degree the pupil should be allowed to have his studies in accord with his interests and capacities.

At the close of Dr. Hanus' address, the report of the committee on nominations was read and approved. The officers for next year are as follows:

President—J. P. Breidinger, Wilkesbarre.

Vice-President—P. M. Bullard, Williamsport.

Secretary—J. F. Adams, Millersburg.

Treasurer—A. B. Wallize, Milton.

Executive Committee—J. P. Breidinger, Chairman, G. D. Robb, Altoona, W. L. Smith Allegheny, Cheesman H. Herrick, Philadelphia, and H. K. Hopkins, Titusville.

After adjournment of the evening session, those teachers interested in the teaching of mathematics and science held a meeting at which a committee previously appointed to draw up a constitution and plan of organization for a sub-section of science and mathematics made the following report:

CONSTITUTION.

Art. I. Name. The Science and Mathematics Section of the High School Department of the State Teachers' Association.

Art. II. Object. The improvement of the teaching of Science and Mathematics in Pennsylvania.

Art. III. Membership. Members of the High School Department of the State Teachers' Association may become members of the Science and Mathematics Section upon application to the executive committee of this section.

Art. IV. Organization.

Section 1. The direction of this section shall be in the hands of an executive committee, consisting of five members, representing colleges, normal schools, and secondary schools.

Section 2. This executive committee shall be chosen at a business meeting of the section, to be held at the time of the mid-year High School Department meeting.

Section 3. The following are recommended as members of the executive committee: J. D. Stark, department of science, Johnstown; Jane Mathews, mathematics, Altoona; Wm. B. Owen, chemistry, Bucknell University; George W. Hull, mathematics, Millersville State Normal School; C. S. Webb, science, Franklin.

Signed: Jane H. Mathews, J. F. Adams, H. N. Couser, and A. B. Wallize.

## FRIDAY SESSION.

The session of December 28th was opened by devotional exercises conducted by Rev. Jas. R. Baker, of Williamsport.

Papers on the subject, "Reasons for Leaving the High School and Remedies for the Same" were read by Principals P. M. Bullard, of Williamsport, and J. P. Breidinger, of Wilkesbarre.

### REASONS FOR LEAVING THE HIGH SCHOOL.

When several weeks ago, Mr. Chairman, you requested me to speak on this subject I agreed to do so without hesitation; had you asked me to-day to speak on the same subject six months hence, I should have declined with alacrity. What at first seemed a comparatively easy task has, on nearer view, resolved itself into an undertaking of large proportions, and because of what seems to me to be the bigness of the subject, I can do little more, within the limits of this paper, than to touch here and there its border and circumference, making very little attempt to search out the heart of things.

I shall discuss the question from two different view-points. For my present purpose I would state the subject something like this: Why do High School Teachers lose so many pupils prior to graduation? All will admit that many innocent persons spend days, months and years in prison, under the iron hand of the law who ought to be enjoying that liberty which is the right of every honest citizen. No one will deny that many have passed to their last reward who ought still to be reaping in the harvest-fields of earth. Many a lawyer has lost case after case which in all conscience he ought to have won. Many a man's freedom, even his very life, has depended on the verdict of a jury too easily swayed by the persuasive eloquence of the prosecuting attorney. Men have died prematurely because of an incorrect or faulty diagnosis, or because of improper treatment after the correct diagnosis has been made. Lawyers and physicians both fail because of ignorance and lack of skill in the treatment of their cases. This is no idle statement, nor is it any less true that teachers lose their pupils for the same reason. We are told, and we do not question the truth of the statement, that we are engaged in a great work, second to no other in importance, and that there is no other class of wage earners on the face of the earth that contributes so much to the welfare and real growth of a nation as the class engaged in teaching. We might add the statement that no other class is so poorly equipped for its work If this latter statement is true it is so for various reasons. Contrast, for a moment, the physician and the teacher. The physician is of a necessity a graduate of a medical school, he has a well-stocked professional library, he reads the best medical journals, he has the implicit confidence of his patrons, he receives a remuneration commensurate with his skill, he treats the physical in man. To which of the above can the teacher plead guilty? I am speaking now of the teacher as a class; there are here, as everywhere, exceptions. The teacher is at best, a graduate of a college or a university, institutions many of which do not pretend to prepare men and women for teaching, his professional library, if he has any, is pitifully small and inadequate, he has not the implicit confidence of *all* his patrons, his salary is a mere pittance, his efforts are, in the main, directed toward the cultivation of the intellectual in man, with too little thought of the interdependence of body and mind.

Pupils leave High School first, and chiefly, because high school teachers and principals do not sufficiently understand the needs of the adolescent. About the time of his admission to high school the child is born again. This second birth is almost as wonderful and almost as much of a mystery as the first. It ushers him into a more intensely human existence. Traits of the higher life now become manifest. There is now a most remarkable increase in height, weight and strength. Important functions are established. Nature begins to equip youth with the power to grapple with the problems of life. He begins to feel the stirring of the soul of man through all his being. He waxes strong, his shoulders broaden, his chest expands, his whole physical being bespeaks the new life. He becomes susceptible to diseases to which he was immune before, the establishment of function is now subject to arrest or defect or to abnormal unfoldment. "The functions of sense undergo reconstruction and their relations to other psychic functions change, and new sensations, some of them very intense, arise, and new associations in the sense sphere are formed." New temptations occupying a very wide field beset the soul. It is at this point that youth is most likely to go astray. Problems are now presented which neither parents or teachers are as yet able to solve. He eagerly longs for more knowledge both of body and mind to help him resist these temptations that seek after his soul. He is not a great exponent of truth and virtue, he does not trouble himself much about the moral quality of actions, but is inclined to be aggressive, a fighter, an organizer of predatory bands, an enemy to discipline that restrains, opposed to order that represses. He begins to feel "new repulsions for home and school and both runaways and truancy abound." He craves the active objective life, desires freedom from discipline and restraint, has a lessening regard for duty, wishes to know and do all that men know and do, overflows with physical life.

From the physical standpoint our system is a process of repression rather than a process of development, and encouragement to normal and healthy growth. When we consider that, in all probability, every part of the human organism is designed for use, we must concede that no part of it can be neglected without serious injury to the development of every other part. I do not say that we make no effort to cultivate the muscular in our students, but I do assert that there is a very apparent lack of balance often amounting to repression. We treat them as if they were about nine tenths brain, where almost the reverse is true. The muscles are by weight between 40 and 50 per cent. of the entire human body. They are the organs of locomotion and in a sense the organs of digestion and respiration. "The cortical centers for the voluntary muscles extend over most of the lateral psychic zones of the brain. So that their culture is brain-building. Muscles are, in a most intimate and peculiar sense, the organs of the will," and we must admit that character is largely built on a muscular foundation. It is well within the range of prob-

ability that the normal high school boy or girl is not only ambitious to become an honored and useful citizen but that he quite well understands what this involves, so far as self-sacrifice and devotion go. Yet his notion of the best means to the end is exceedingly hazy. We must keep in mind all the time that the environment is almost as various as the individual, and that the development of the will therefore will be largely modified because of this fact. If we agree with Schopenhauer that man is one third intellect and two thirds will, and again, if we agree that the muscles are in a most intimate sense the organs of the will, we are then forced to the conclusion that our secondary school systems must be so revised as to include the proper direction of the muscular activities of youth.

Is it not possible that our one-sided muscular development is one of the ultimate causes of nervous disorders? Perhaps we might well stop to inquire why we are as a race, right-handed, why one shoulder is almost universally higher than the other, and one hip drawn down, producing spinal curvature in its various forms. Is it not possible to so cultivate the muscles of hands and arms as to make the use of the left hand as easy and natural as the use of the right? If so, is it practical? The organist and pianist must do so, Is there loss of time in such cases? Would ambidexterity not be of immense advantage to the surgeon in his operations, and to artisans of every class, even if the deformities mentioned above were not thereby corrected? The deleterious effects of too much sitting are too well known to need discussion here, but perhaps the worst of these is spinal curvature. I believe we need something to combat this tendency to deformity in knees, hips, spine and shoulders which in very large measure is due to school-room habits. I do not refer to these things merely because of their existence but because of what seems to me to be their bearing on the point at issue. We do nothing more in the great majority of secondary schools to-day than to train a few athletes, where the great need is so to raise the vitality of school children that they may be able to resist the countless temptations, the diseases and nerve strain of our somewhat too strenuous age, so to direct the muscular activities that will power shall be cultivated and character built. Grote states that among the ancient Greeks one half of all educations was devoted to the body, and Galton urges that they as much excel us as we do the African negro. If we can wisely direct the muscular activities of our pupils into the proper channels we shall have solved the problem of discipline in large measure, have provided for one half at least of their education, and shall have given them one additional reason for remaining in school.

The question of development, after all, is largely a question of interest and one is normally much more interested in doing a thing himself than in seeing another do it, or in having it done for him. Shall we govern our pupils or shall they have a hand in their own government? Everyone will admit that there must be a wide difference between the teacher's idea of school government and the pupil's idea of school government, but at the same time few who have lived under a republican form of government will declare their preference for a monarchy or a despotism. Few also will deny the reasonableness of self-government and yet many hesitate to commit themselves to it. Of course, self-government of immature persons must be wisely supervised by one in authority; boys and girls must be taught to govern themselves before school government can be controlled by them. I believe, if the matter is given proper attention, that many of the perplexities that beset the teacher may be entirely eradicated; that going as far as you can without being caught at it, deception in examinations, the use of improper helps, copying, etc., will become a thing of the past in any efficiently self-governed school; that loyalty and love for the school will be awakened and another reason for remaining in school will present itself to the pupils.

There are other things which a pupil may do besides the one mentioned. I recently questioned a visitor to a certain school concerning his impression of the work of the several teachers. He replied that, in his opinion, everything was going very well except that in one recitation room he found the teacher preaching. Do teachers forget that their platforms are not pulpits, do they fail to remember that high school pupils have a strong aversion to the lecture method, and that if they are interested in anything during their recitation periods, it is normally, in reciting the lesson prepared. When information is oozing from a pupil at every pore, and is just ready to drop from his tongue how disappointing to have an over-zealous teacher do his reciting for him. He is twice robbed; deprived of his right to state what he knows, and deprived of the opportunity to express himself, an opportunity which, at this period, he cannot well afford to miss; his enthusiasm is quenched, one of his joys removed. Why prepare a lesson when you can't recite; he grows restless, inattentive, intractable. If we talk less and let our pupils talk more shall we not find another reason for pupils to remain in school.

I read some days ago of a civil engineer, who made his entrance into the engineering world under most discouraging circumstances. He was for years unable to reach even the lowest position, but nothing daunted he pressed on, he devoted himself to engineering problems, he devoured every scrap of information concerning his business, he began to write books on the subject, climbing nearer and nearer the fulfilment of his hopes and ambitions day by day until he not only forced the best men of his profession to recognize his ability, but even to ask his advice. He became a master of his business. How is it with high school teachers? Are we devoted to our profession? Do we devour every scrap of information that has a direct bearing on that business? Have we in our years of experience accumulated a store of valuable information which will, at least, enable us to solve some of the problems that clamor for solution so insistently to-day? I am afraid that many of us must answer No, and we are ready to give many reasons which seem pertinent. The door to the profession of teaching is too wide open. It is too easy to get in; once in it is too easy to stay; and because of this fact teachers are paid salaries ridiculously small, so small, indeed, that a man can scarcely provide for the needs of a growing family, that he must usually sacrifice some necessity in order to attend an educational meeting like this—so small that he can scarcely spend a decent vacation, nor purchase the library he would like to have. If the goal were surer; if it were possible to measure the results of a teacher's labor; if, after weeks and months of toil, substantial advance toward the end could be seen, one might rise superior to these difficulties, and pursue his business with such determined purpose as to really become master of it. I don't say that very many high school teachers do not teach their particular subject well—many of them teach exceedingly well after their method. What shall be said of the method is another proposition. I wish to convey the idea that a successful teacher must not only be learned in the subject he is to teach and in related subjects as well, but that he must be a master of method and an expert in adaptation

of method to the individual. In my opinion any school having teachers so qualified would graduate every pupil endowed with sufficient brains who was not absolutely compelled to leave.

Our courses of study sadly need revision. We are still tenaciously clinging to the traditions of the past, forgetting, it seems to me, that we are a people of the past only in heredity, that present-day needs are not the needs of a half-dozen generations ago, but are rather the needs of a new people. Some of our unsettled problems have been handed down from age to age, but most of them are problems peculiar to the present generation. Why live in the graveyard of the past in educational matters? Teaching is still not an exact science. We are pretty well agreed as to what must be done, but we are at variance as to how to do it. The last fifteen years have witnessed a remarkable new movement on the part of colleges to influence high schools, beginning with the report of the Committee of Ten in 1893. No one will deny that great good has been wrought. High schools have been greatly improved; a better acquaintance has sprung up between high schools and colleges; high school courses have been enriched, subjects better correlated, and faculties strengthened. To offset the good, however, much harm has been done. One of the evil effects is the measurement of high school preparation by so many hours per week for so many weeks, a certain number of experiments in chemistry and physics, how many weeks shall be devoted to a subject, how much Latin shall be read, how many pages of French, how many of German, what credit shall be given for a subject, etc., to the minutest details. As if the work of a school could be measured by inches, feet and yards; as if it follows that the preparation of a pupil is adequate or inadequate because he has absorbed a certain amount of prescribed pabulum so many times a week for forty weeks; as if the fitness of one pupil as compared with another depends in any large sense on periods of time, or as if there were any standard by which preparation may be measured in terms of years and subjects. College entrance requirements of the present day appear to me ridiculous. They are certainly making out of many of our high schools what they were never intended to be, mere college preparatory schools and so sacrificing the interests of the majority who will never go to college. The preparation of our own high school pupils in Latin while accepted by a certain college for women is accepted in a rather charitable spirit, with the hope expressed that in future our preparation will include a greater amount of sight reading of Latin poetry. To quote from the work of the Committee of Ten: They "unanimously declare that every subject which is taught at all in a secondary school should be taught in *the same way* and to *the same extent* to every pupil so long as he pursues it, no matter what the probable destination of the pupil may be or at what point his education may cease." I may be wrong, but it seems to me that no greater mistake could be made than to follow this suggestion. To put it briefly it takes no account whatever of the fact that men are intensely individual in every way, it takes no account of present interest, or of future outlook. Here is a pupil who reaches his conclusions in mathematics, for instance, by leaps and bounds, is he to be compelled to take all the intermediate steps that another not so richly endowed must take. No! Nature differentiates in all her processes; men are not created equal in this broad sense. The statement quoted above leads inevitably to two conclusions: First, that fitting for college is the same as fitting for life, second that "all subjects are of equal educational value if taught equally well." To fit for life I assume is not to emphasize the scientific side of any topic, but rather to emphasize the practical and industrial side. The question of educational values has been settled for all time if it is true "that all subjects have equal educational value if taught equally well." I suppose that this depends somewhat on our idea of education. If it has any bearing at all on man's future usefulness as a member of society it would be absurd to say that the study of the Greek moods and tenses would have the same educational value for the man born with a genius for painting as the study of art, even though he may have some use for the former.

In my opinion that course of study is best which best suits the age in which we live. We need to cut loose from tradition and tie up to present day problems. We are a people essentially English and yet we can't be said to teach English very well. The supply of Latin and Greek teachers far exceeds the demand, while men and women who can really teach English are few. Why are we just beginning to awaken to the value of the English language in education. Is it not vastly more important to an American boy or girl to have a good English working vocabulary than to know a few hundred Latin or Greek words? The time spent in the study of language in our high schools should be so adjusted as to allow more time for the study of English, and this study should be more of content than of form.

I have no model courses of study to suggest, but I think we should throw off this incubus of college preparation as prescribed by colleges, and put into our courses more of the things that are of present-day interest, so that our pupils may see the relation of school to life and because of that perception may desire to know.

It is quite unnecessary for me to suggest that we need not only to know more about the subjects we are to teach, but that we need also to know better how to handle the individual. Each pupil is a problem in a special sense well worthy of the most skilful teachers best effort. Here is the food and here the hungry pupil. How shall I administer the food so that robust mental, physical and moral health shall result; so that it may not be said that "after one to three years the great majority who enter high school drop out limp and discouraged for many reasons, largely however, because they are not fed?"

In what I have said up to this point I have tried to give some of the reasons why teachers are responsible for the failure of so many high school pupils to graduate. Let us glance at the other side of the picture stating the question as the programme states it. Why do so many pupils leave the high school? I shall not attempt to do much more than give a brief outline of what seems to me to be some of the reasons; making no effort at all to present them in logical sequence. To place all the responsibility on high school teachers would be to stop far short of the exact truth. There are causes operating prior to the admission to high school over which he has no direct control, the effects of which, many times, he can only modify.

I shall not be accused of a desire to shift the responsibility if I say that a very considerable percentage of the pupils admitted to the high school are not adequately prepared. This is true, not because the teaching in the grammar schools is not of excellent quality, though this is often the case, but because there is always pressure from below. As a result some pupils are promoted too soon, some of these are not mature enough to enter successfully on the work of the high school; some have not acquired habits of study; some have been poorly taught; others are promoted because to keep them longer in the grammar school would result in their discouragement.

So after a longer or shorter period they drop out of the high school, never having really been a part of it, where they should not have been admitted.

Pupils leave high school because of physical disability, due to heredity, the establishment of new functions, and to unsanitary conditions, such as poor ventilation, varying temperature in different recitation rooms, poor lighting, etc. Many of these unfortunate children do not have sufficient care at home and consequently are much more likely to be affected by these extraneous circumstances. Every high school should have special facilities for caring for its sick pupils, including a trained nurse who should be a member of the faculty.

Poverty is also a fruitful cause, and often a valid one. It is a very difficult thing for some parents to provide for the needs of a large family and it not infrequently happens that one or both of them are either disabled or taken away. In such cases the high school boy or girl, even though ambitious to continue his school work must leave.

Parents again are indifferent. They are possibly not educated themselves, and yet have been successful. They are too short-sighted to recognize the great changes that have been wrought in the past decade or two, and so fail to appraise a high school education at its proper value. Others are yielding in disposition and finally give way to the almost constant teasings of their children who not having the desire have not courage enough to remain in school and fight out its battles. Occasionally a man is found who will compel his daughter to remain away from school, because, in his opinion, a high school education is not necessary for a girl Then there are the wealthy families in many of which children are accustomed to a luxurious environment until manhood or womanhood comes upon them, and so are not prepared to endure hardship; and no one will deny that a majority of the pupils who graduate from a good high school must learn some measure of self-denial and learn how to apply themselves vigorously to mental problems. The children of such parents leave the high school because they are not controlled by any fixed purpose. To-day they are full of enthusiasm, to-morrow they are luke-warm, they are frequently tardy, become irregular in attendance, get behind their classmates, become discouraged, succeed in convincing their parents that the high school is not of much account, and so we lose them.

Others are lost to us because they have no proper conception of the bearing of education on life. They think of the high school as a place in which to have a good time and value it chiefly because of the social advantages it may offer through its organizations. Such a conception is bound to lead to disappointment and to neglect of opportunity. These pupils fail to keep pace with their classmates, acquire bad habits, come to hate restraint, are a constant source of annoyance, and seldom develop character enough to overcome the difficulties in which they become involved.

Again, some pupils are held up the first year in the high school by subjects that are intensely uninteresting. The utility of certain subjects is not immediately apparent, and it is very hard for such pupils to find their proper place. They are continually desiring to shift about from one subject to another, and imagine that they can win out by neglecting the obnoxious study. The teacher must at this point be able to change the point of view of such pupils by making the subject interesting enough to attract and hold their attention.

The desire for independence, for better clothing, and greater freedom frequently causes boys and girls whose parents are indifferent or shiftless to break away from the restraints of school, from tasks that are neither immediately remunerative nor congenial. Some, too, are forced out of school by loneliness and social ostracism.

Our faculties are somewhat out of balance by reason of the number of women teachers as compared with men. I believe it is a calamity for the education of boys at a certain period to be entrusted entirely or chiefly to women. Boys at this period are essentially manly. They admire the man of strong character and are easily subject to him, while they are not very much in sympathy with the discipline exercised over them by young women nor very likely to pay much attention to it. There comes a time in the lives of most boys when they become a very trying problem to even their own mothers to whom they have given their respect and strong affection. Women do not understand them very well, and often seem to know how to manage them not at all. The boy at this time needs the sympathetic and kindly help of a strong-willed and large-souled man. Having this he will be more likely to pass this period in school.

I have tried to point out, in what I have had to say, a few of the reasons why so many pupils leave high school prior to graduation. In some of these I may be entirely mistaken and I may have omitted some that are far more important, but to my mind the great burden of the responsibility rests with high school faculties, and it is quite possible that the root of the trouble is in the way in which high school faculties are constituted.

The second paper was read by Mr. J. P. Breidinger as follows:

The discussion of this subject should be directed towards the consideration of the causes that force students out of our high schools, and remedies for this defect.

It is true that too large a proportion of the students of our public school system leave before they have finished the course of study offered. This statement is applicable to the first eight years of the child's school life as well as to the last four. There are always a number leaving the high school for reasons perfectly legitimate and beyond the reflection brought by adverse criticism, but it is equally true that many drop by the wayside that should be retained. This latter class deserve our attention in this discussion. The reasons advanced for leaving are always fictitious, whether those giving them are conscious of it or not. We all have been annoyed by the apparent haste of parents in getting the boy to learn business in the practical way. They want him to begin at the bottom and learn it in the "old-fashioned and only way." These children, however, are rarely the ones that teachers would select as likely candidates for a successful business career, and they must be put with the class that cannot afford to remain in school longer because they must begin to earn money. When too closely questioned as to the real motive for this action, one invariably gets the true reason in the reply, "Oh, well! I'm tired

of going to school anyway." There is the suggestion for the remedy.

Then there are those who for some reason or other can not keep up with their classmates, or the prescribed rules for conduct are of such nature that those with an unfortunate disposition cannot conform to them, and in consequence they are forced from the association of their more fortunate schoolmates. Some are compelled to leave because of ill health, often caused by overwork, to which they are urged by some unwise regulation of the school system or the poor judgment of an injudicious teacher.

We must not forget to call attention to the number of first-year pupils who enter without any definite idea of what the work means, but are drifting along with their grade from year to year. The new environment proves too much for them. Having no fixed purpose, and being quite immature, they become easily discouraged. The change from the lower or grammar grades to the high school differs in respect to subject matter, and too frequently in the manner of teaching. The conditions at this period of the child's school life are without the restraint of the continuous advice and counsel the closer relation between teacher and pupils of former years affords. In the high school, students change from one teacher to another with almost every recitation, and too frequently there is the want of harmony in the presentation of the subjects of the course due to the fact that teachers are so apt to overestimate the importance of the subjects they teach, and so become too exacting in the attainment of a certain standard in a given time, thus demanding too much of the student's energy on a particular line of work. This particular change comes at a critical period in the student's mental development, which teachers too often underestimate. These and other causes take the students out of our high schools at various times in their school career, and truly we as teachers in this work must feel concerned, and I believe must look too often for the difficulty in the conduct of the school itself.

When we think of the high schools as the finishing schools of our public school system, and that they contain only the most fit of the young people of that system, and that one of the essentials of a successful high school must be the adaptation of its courses of study to the needs of its immediate community, we cannot help but feel the more responsible for its weaknesses, and the conditions prevailing that will force students from the ranks, before they should leave.

The taxpayers maintain our public schools for the education of the children of the state, and are anxious that they be retained in the schools until they have availed themselves of this opportunity to the greatest extent possible. They have the right to demand that the schools be so conducted that the largest number possible complete some selected or prescribed course of study. We dare not shirk the responsibility that rests on us as principals and teachers, and must ever keep in mind those factors that mean success in the conduct of these schools.

There are so many things that enter into the creation of conditions that tend to hold the student, that it would be vain to consider even a reasonable number of them in the time alloted to such discussion at this time. Sometimes I feel as though the effort made to develop our high schools comes to us from the wrong direction. Higher institutions of learning should and do get a number of students from our high schools, and their unreasonable demands often lead us to begin at the top and build down, instead of beginning at the bottom and building up. When we yield to these demands, we are too apt to impose conditions that are disagreeable and unnatural in our endeavor to fit our students into this mould, and take away the very life and attraction of the school, and sacrifice the child.

I believe that nearly every one here can remember the teacher whose presentation of a subject inspired him to his best efforts; or where one teacher taught several subjects, he succeeded in creating a greater interest in one subject than another. The teacher is the school, the same to-day as in our own school days and that school that has the best teacher loses the least number of students.

The development of the high school has been so rapid—and the increase in numbers always exceeds the estimate—that in most of our schools we are short in the teaching force, and this is most often the case at the most critical period of the child's school life. The overworked teacher becomes mechanical in his work, and the charm of his personality becomes powerless in its influence. It is impossible for the teacher to enter into the closer personal relations with the individual pupil that invites confidences, and thus give opportunity for personal help in passing along the difficult places of the school life. The demands made upon the teacher in the work required take away from him the privilege of giving credit for effort, aside from the definite results demanded to finish certain required studies.

During the discussion of these papers,

Superintendent Howerth, of Shamokin, gave the following interesting statistics gathered from his own high school: Entered the Shamokin high school during four years 119, deceased 1, moved out of district 9, failed and returned in next class 11, failed and did not return 3, went to work—help needed at home 10, ill health 7, lack of ability 2, did not like school (boys) 2, went to normal school 1, went to college 3, father did not approve of high school education for girls 1, stopped as soon as foot ball season was over 2, married 8, graduated 59.

Professor Cheesman A. Herrick of the committee on High School Supervision than made a report, in which he outlined the following bill to be reported at the present session of the Legislature.

STATE SUPERVISION OF HIGH SCHOOLS.

Section I. Be it enacted, etc., That there be added to the Department of Public Instruction of Pennsylvania a deputy termed a State Inspector of High Schools.

Sec. II. The State Inspector of High Schools, as provided for in Section I, shall be appointed by the Superintendent of Public Instruction, and shall be under general direction of the State Superintendent.

Sec. III. It shall be the duty of the State Inspector of High Schools in conjunction with and upon the approval of the Superintendent of Public Instruction,

(a) To fix a minimum requirement of school preparation which must precede the beginning of high school education as set forth in the terms of this act, which minimum shall be expressed in subjects of study and amount of requirement in these subjects.

(b) To formulate a standard of required and elective subjects for the several forms of High Schools as set forth in Section V of this act, and in connection with committees of High School principals and teachers which he may appoint to furnish working syllabuses in the form of outlines for instruction, bibliographies, etc., for use in the High Schools of the State.

Sec. IV. It shall be the duty of the State Inspector of High Schools to visit each high school of the state at least once in two years and to confer with teachers, principals, superintendents and school directors or boards of education as to the ways of improving the schools. After each visit the inspector shall make a report noting such points as Courses of Study, efficiency of organization and instruction, condition of buildings, laboratories, school libraries, etc. In connection with this report suggestions shall be made for the improvement of the conditions as they are found. This report shall be made to the Superintendent of Public Instruction and kept on file in his office. It shall be the duty of the Superintendent of Public Instruction in conjunction with the State Inspector of High Schools to bring such matters contained in the reports of the State Inspector of High Schools as they deem are for the best interests of the schools.

Sec. V. The State Inspector of High Schools shall, with the approval of the Superintendent of Public Instruction, classify the high schools of the State into three grades, termed: First, second, and third. No school shall be classed as first grade that does not have four years of approved instruction in high school subjects for not less than nine months in each year and employ the full time of at least three teachers duly qualified for high school work. No school shall be classed as second grade unless it has three years of approved instruction in high school subjects for not less than eight months in each year, and employ the full time of at least two teachers duly qualified for high school work. No school shall be classed as third grade that does not furnish approved instruction in high school subjects two years and employ the full time of one teacher duly qualified for high school work. Subject to the approval of the Superintendent of Public Instruction, the State Inspector of High Schools shall have power to grade schools as herein set forth, and to change the grade or drop a school from grade if it changes in character or time of instruction. All high schools shall be classified in accordance with the shortest course maintained in those schools.

Sec. VI. The State Inspector of High Schools shall receive an annual salary of three thousand dollars, and an annual allowance of one thousand dollars for traveling expenses.

This was followed by a paper on "History in the High School and How it should be Taught," by Warren D. Renninger of the Central High School of Philadelphia.

HISTORY IN THE HIGH SCHOOL : WHAT SHOULD BE TAUGHT.

When asked to prepare this paper the only limit fixed was that it be on History in the High School. In order to find out the present condition of this subject in the schools of the State, I sent out a circular-letter to a hundred of the largest high schools asking a series of questions that would indicate in a general way: 1. What time is being devoted to History; 2. What subject-matter is taught; and 3. Something as to the method of teaching. Replies were received from about half of those letters.

So far as I have been able to learn from this and other sources, the most immediate need of historical work in our high schools is to know what to teach.

History has, to a large extent won its place

in the schedule of high school studies. Most schools require two years, at least, and many offer four years work. But there is absolutely no uniformity as to what subjects should be taught in this time. From the reports received, I find ancient history taught in every one of the four years of the course in different schools. The same is true of English and American history. Although American history is generally taught either in the first or the last year. In a number of schools the course in English history precedes the course in ancient, medieval and modern history. This is done even in schools where three separate years are devoted to the course and all the work is required.

Uniformity in the History course in different schools may not be essential, but this lack of uniformity indicates a lack of definiteness of purpose or else a great diversity of purpose. Now, it is essential that there should be a definite purpose in the high school History course.

In order to determine what we should teach we must first see why we teach history at all. Only recently I heard a prominent university professor of history, and author of several well-known books, say in a public address that history is not a useful study. I believe that it is useful. Historical knowledge is useful in the same sense that any other knowledge acquired in school is useful. Furthermore I believe that that is the justification for spending our time and efforts in historical study. We do not study history simply to gratify our curiosity, to know some particular event in the past, or to know the work of some great man. The knowledge acquired by historical study is just as essential to an active participation in our modern civilized life as any other kind of knowledge which an educated person possesses.

Our understanding of the educational value of history depends upon our conception of education. The soundest educational thinking to-day is based on the doctrine of evolution. The clearest brief statement of this theory of education we have perhaps from Nicholas Murray Butler, in his lecture on "The Meaning of Education." He points out that the powers of a child develop in such a way as, first to adjust the child physiologically to its physical environment; then the powers of the child must be so developed as to adjust it into its human environment. Our institutional life, science, literature, etc., are looked upon as constituting this human environment. The process of educating a child is the process of adjusting it into our institutional life, into our religious life, into our science, literature, and art. President Butler says, "When we hear it sometimes said, 'All education must start from the child,' we must add, 'Yes, and lead into human civilization'; and when we hear it said, on the other hand, that 'All education must start from the traditional past,' we must add 'Yes, and be adapted to the child.' We shall then understand how the great educational temple of modern times into which every civilized nation is pouring its strength and its treasure rests upon the two cornerstones of the physical and the psychical nature of the child, and the traditional and hereditary civilization of the race; and now it is the problem of the family, of the school, and of the home to unite these two elements so that each shall possess the other. We shall then have a conception of education which is in accord with the doctrine of evolution, and which is in accord with the teachings of modern science and of modern philosophy."

Education, then, is the adjustment of the individual to the spiritual environment, or putting the individual into possession of the social inheritance of the race. In this inheritance there is a vast institutional inheritance which has been growing through the centuries and into which our education must adjust the child. Education should fit the child to share in our political, industrial, intellectual and religious life. The adjustment into the state, the industrial organization, the school, and the church, the institutions through which these activities are carried on, becomes intimate and complete only as we learn their real nature, and we understand the real nature of our institutions only when we see how they came to be as they are. This is what History should teach us and herein lies the educational value of History.

Let us look more carefully at the nature of History and see whether it is justifiable to say that history should teach us how our institutions came to be as they are. The term History is vaguely applied to all accounts of anything that has happened in the past. History is often looked upon as a mere record of events that have occurred among mankind, or as an account of what great men have done, or sometimes as an account of the rise and fall of nations. In these as in many other definitions of History two ideas of fundamental importance are overlooked: first, that History is a study of *social* activity; (it is not merely an account of the achievements of great men); second, that history has a vital connection with the present. It is not a mere record of the past. History is a study of society. It deals with organized groups of men. It treats of the achievements of the whole race. The individual, or great man, or hero view of history is wrong. The static view of history is also wrong. History is not even simply social dynamics. It is more than an account of society in action. Nor is it sufficient to view it as social progress. It must be looked upon as social development. Thus viewed history explains the organic development of our institutional life.

This is the view that characterizes the best historical writing to-day. In the past, historical writings have been characterized by three main tendencies: the narrative, the didactic, and the genetic. Although, to-day they exist, to some extent side by side, they represent, in the order named, stages of historical writing. The old chroniclers simply narrated what happened. Of didactical writing we find the best examples in medieval and Reformation church history, most of which was written with a view of teaching and justifying either the Catholic or the Protestant cause. The genetic view of history characterizes the writings of the best historians of the present times.

Recognizing that history is a social study, they deal with the evolution of set forms of social activity or institutions. They trace the growth of civilization from small groups of men simply organized among whom there was little differentiation of thought and activity to large aggregations of most complicated organization in which the individuals are so highly differentiated in thought and activity as to be incapable of independent existence. For, in social evolution as in biological, differentiation goes hand-in-hand with integration. Adam is at one end of the line, a great republic at the other. The man who has learned to see our institutions in their historic growth is fitted to live more completely the modern institutional life. If he knows the history of the State, he can share more completely in our political life; if he knows the history of our literature, he can live more completely our literary life; and if he knows the history of the Church, he can take a more intelligent part in our religious life.

Having in mind, now, that education is the adjustment of the individual into reciprocal harmonious relations with his environment, and that our institutional life is an important part of that environment and also that history shows in a true light the real nature of these institutions,

we are in a position to see the educational value of history to the individual.

From the standpoint of *social* progress this view is as sound as from the standpoint of individual education. This genetic view of history has taught us that we are only units in organized social groups, and that these groups, the family, the State, the church, the industrial organization, etc., are growths; but it has also taught us that these institutions are in a condition of change capable of being moulded, and it has further taught us to regard every individual as a unit, as an active agent capable of moulding in some degree this institutional growth. Our government is constantly being changed to meet new conditions. Whether these changes are made for better or for worse depends upon the intelligence of the citizens, upon their ability to see in long perspective the political problems which arise. Our schools are in a condition of growth, which is capable of being directed. Should this direction be left to short-sighted teachers, or is the community right in its present demand that those who mould our educational system should be familiar with the history of Education? In moulding the industrial system are not those who are familiar with the historic growth of industry better fitted by that knowledge? Is not the progress in art and in literature made by those who are familiar with the history of these phases of civilization? Institutional growth and progress in civilization cannot keep up a pace more rapid than that caused by the activities of the individual upon our institutional life. Historical education is therefore not only important for the individual—but also essential to the progress of civilization.

All this suggests why every individual in his education should become acquainted with his social and political environment; why he should be made to feel that although he is an individual, he is a member of a social organization, living an institutional life which it is his duty to help sustain and mould, and which in turn sustains and moulds him; and why education should develop in the individual a sense of the duties and responsibilities of citizenship, some capacity of dealing with political and industrial problems, and some of that cosmopolitan, liberal, tolerant and optimistic spirit which is bred by the intelligent study of history, and of which Prof. J. Henry Robinson says: "I firmly believe that of all the good lessons which history should teach us, this lesson of cosmopolitan sympathy is far the most important and far-reaching."

From this genetic view of history, it becomes apparent that history cannot be taught backwards, and therefore the course in English history should not precede the course in Ancient history. Looking at it in this light, the course in our schools should be a continuous course beginning with Ancient history and ending with American history. This is in line with the recommendations of the Committee of Seven of the American Historical Association.

In recommending a four years' course in History for high schools, they divided the work so as to give Ancient history to A. D. 800 in the first year, medieval and modern European history in the second year, English history in the third year, and American history in the fourth year. These recommendations were from the first received with great favor. Although there has recently been some objection made to the plan, it has had a great influence. A number of the most enterprising publishers announced the appearance of new series of textbooks based upon these recommendations, and most of these books are a decided improvement upon those before available. The recommendations of the Committee of Seven have also had great influence in the framing of school courses. In many schools especially in New England and in the Middle West the course was adopted practically as recommended. The replies received from schools in this State also show some effect of the recommendations in these schools, but they can certainly not be said to have been generally adopted in these schools.

There are several practical difficulties in the way of this arrangement as recommended. The first is in college entrance requirements. A course in Ancient history such as conforms to the ability of first year high school students and completed three years before entering college will not meet the requirements for college entrance. The course given in the first year would differ in content and in method from an Ancient history course given in the third or fourth year. The colleges are practically demanding the kind of course that could be given only in one of the last two years. Here we are face to face with the same difficulty we have in all high school work, arising from the fact that the high school has to perform the double function of a finishing school and a preparatory school.

Leaving for separate consideration the course for students who expect to enter college, let us confine our attention to what we should teach students who are not going to college. For in the public high school, the course should be framed primarily for these students. This is admitted even by college teachers as the following extract from a report made in 1904 at the meeting of the Association of History Teachers of the Middle States and Maryland by a committee composed of six college teachers saying: "Your committee unanimously support the recommendations of both the Committee of Ten and the Committee of Seven, that the course of study in history in the secondary schools should be constructed to subserve the ends for which the secondary schools exist. No pressure from the relatively few students who expect to enter college should interfere with this; no conditions imposed by the colleges should be permitted to disarrange or shorten the course in history for the greatest advantage to the future citizen who must secure from the secondary school *alone* whatever of historic knowledge or feeling he may possess. The knowledge of institutions and ideas, both in their present form and in their historic development; the relation of our own to other peoples far and near; the acquaintance with books and men; the rare opportunity history affords of thinking about facts and principles which underlie daily practices—these," says this committee, "are all too valuable to be denied to the many for the sake of preparing the few to meet college entrance requirements."

The high school should therefore offer a course in general history like that recommended by the Committee of Seven, beginning with Ancient history in the first year. In only about one fourth of the schools from which replies were received is this the practice. Of the remaining three-fourths some offer no history in the first year and a few of these begin the history course in the second year with Ancient history, and thus still give a continuous course in general history. But a much larger number of schools give American history or American history and Civics in the first year. This American history is generally hardly more than a grammar school course and not such a course as the high school should give and only can give after the pupil has become familiar with the European background of American history.

For teaching English history in the first year there is perhaps more justification for it is claimed that the pupil needs the knowledge of English history in time for his work in the history of English literature. I don't feel competent to speak very positively as to what is

desirable in the English course, but it seems to me as if the third year were early enough for a systematic course in the history of English literature. If this be true then the history of English literature might be taken in the same year as the English history—a very desirable arrangement.

It is also claimed that English history is easier than Ancient history and therefore better adapted to the pupil in the first year. My experience will not bear out this statement, for, in dealing with a large number of students, I very frequently find students who did excellent work in Ancient history in the first year, are unable to attain the same high rank in English history in the following year. I think the reason for this is clear enough. The institutions of the Greeks and Romans are less complicated and therefore more easily understood than those of the higher civilization which we find in England. For example: In explaining the social and political organization of Greece one never finds such long and knotty threads leading centuries into the past as one unavoidably strikes in Feudalism and the Church, in explaining the social and political life of England. But it is claimed that the pupil is more familiar with English institutions. He has heard of parliament and he has never heard of the Areopagus. That may be true, but, beyond the mere name and the vague notion that parliament resembles our congress, he probably knows no more about parliament than he does of the Areopagus; and it is a very much simpler matter to explain the real character of the latter. How is the history of parliament to be taught and its constituency explained, without a reference to barons and higher clergy? But what meanng have barons and higher clergy to a boy who knows nothing of the complicated and century-old institutions of feudalism and the church? From the nature of the subject, Greek history is simpler than English history. Speaking of this from the standpoint of the pupil, G. Stanley Hall says, in conclusion of his argument: "Youth is most at home near the dawn of things. Properly edited historic matter from the Old Testament, Herodotus, Thucydides, Tacitus, Froissart and a long list of others, are *psychologically* nearer to this age than is the last election. Wherever the world is young, youth is at home and some of the oldest writers of history properly edited contain more for them than do the latest and most scientific."

In answer to the statement that Greek institutions are hard to understand, it may be said that Greek institutions are often made more difficult to understand by looking at them through twentieth century eyes, and interpreting them in terms of our own civilization. This is one of the most common and most pernicious mistakes in teaching history. In order to avoid this it is highly important that we put ourselves back into the spirit of the age we are studying and interpret the life of those times in values of that age and not in those of our own. This, of course is hard for the pupil entering the high school to do because it is all very new to him. It is more strange to him than it should be if he had the best historical teaching and proper subject matter presented to him in the grammar school. But even with the present grammar school knowledge of history the pupil comes to the high school with some ideas of the primitive life of the Indians and the simple colonal life of our forefathers. From these ideas the high school can begin showing how the Greeks were at first a primitive people with a very simple government, crude religious ideas, a primitive organization of society into families, classes and tribes, and no education or art as found among civilized peoples. And only after this has been clearly established is the pupil prepared to enter upon the study of the great achievements of the Greeks in the development of political liberty, in the perfection of the Greek language, in the beauties of Greek literature and art, and in the lofty thoughts of Greek philosophy. Ancient history then, and not American or English history, should come at the beginning of the high school course.

It will not be necessary to follow out at such length why continental European history, rather than English history, should follow this course in Ancient history. Remembering that we are looking upon history as an explanation of the growth of civilization, we cannot fail to see the importance of understanding how the Roman and German civilizations became fused and thus grew into the kind of social activity and institutions peculiar to the Middle Ages and fundamental in the growth of the institutions of modern Europe. It may be argued that this can be shown in English history. It can be done, but less satisfactorily. The same changes took place in England as on the continent; but it gives the pupil an Anglo-center point of view that is misleading. It gives a more correct view of the world's progress and England's relative importance when it is shown that this development took place all over western Europe, and that England is but one corner of the large field over which these changes were taking place. It is very difficult to teach in true perspective the Danish invasions, or the relations between the King and the Church, to a class in English history which has not seen the movements of the Northmen and the history of the Church from the continental point of view. With a knowledge of the changes in the whole of western Europe the pupil is prepared to see the peculiar form of these changes under the particular conditions there. And after seeing how the English institutions had grown up he is ready to see the Englsh customs carried to America and there modified by local conditions into the institutional life in which we are living to-day.

But the problem of what to teach in the high school history course is not yet settled even if we were to agree that Ancient history should be taught in the first year, medieval and modern European history the second, English history the third and American history the fourth year. There still remains the problem of what things in each of these subjects should be taught. Our purpose being to explain the organic development of our institutional life, we have a complicated problem. This institutional life itself is very complicated. To facilitate the study of it, there have been selected five important phases of it; the political (state), the economic (farm and factory), the religious (church), the domestic or social (home), and the cultural or educational (school). Here are five important forms of social activity common to all historic peoples, and if we trace through the whole course in history the organic growth of each of these, noting their interrelation as we come down through the centuries we will have attained in a fair degree our end.

The older histories dealt so largely with only one of these, the political, and so slightly with the others, that we are adding much to the content of history in demanding that these other institutions receive their share of attention. This makes it necessary to eliminate from the course many things that have long been considered important. Fortunately there is much in the traditional course in history that can be sacrificed without any real loss. The old chroniclers recorded the spectacular and the unusual things. We are more concerned about what was the usual social activity, the deep seated, characteristic customs in the age studied. This is generally recognized to-day, yet teachers find it difficult to abandon what was considered important when

they were in the secondary school. Especially do the names of men overload the usual history course. It is a waste of time and energy to teach the names of men unless we stop long enough to study the man's personality and see how he was especially influential in his time in moulding the growth of the institutions with the history of which his name is connected. This means that a large number of names now taught should be omitted entirely and when we are going to explain a great social change by the personality of a man, that personality should be taught much more fully than is now generally the custom. Many names of places now taught could also be omitted and in their stead should be taught the physical conditions that were important in the growth of the institutions studied.

This leads me to a consideration of the third proposition as to what should be taught in the high school history course, viz.: The geography, physical and political, should be taught in its relation to the history throughout the course. The domestic, industrial and political life of a people is so directly connected with physical environment that it is impossible to give a satisfactory explanation of the character of this life without some knowledge of the physical geography. Such places as are mentioned should be located in the map. This means a constant use of maps for political and physical geography.

In the fourth place, it is necessary that we should teach something as to the method of studying history, and develop power in the student to do historical thinking. This means that the student should be taught the use of books; he should learn to use the index and the table of contents, to distinguish authoritative and recent books from unreliable and antiquated ones by noting the author and the date of the book and to learn the character of the book from the preface. We should teach the student to be on the lookout for the references and authorities quoted in the book. He should become familiar with the standard secondary works bearing on the field of history he is studying. He should learn to use reference books, biographical dictionaries, encyclopedias, guides, atlases, maps, etc. This knowledge he should get by actually handling these volumes, and every high school needs them just as much as its physical and chemical laboratories.

We should teach some things very definitely, but we should also encourage the student to read much which he may never be called upon to know in any test or examination. He should be given exercises on this reading which will require him to distinguish essentials from unessentials.

As the last topic for consideration, we have left the question of how to meet college entrance requirements with the course above recommended. The greatest difficulty arises where the student wants to offer Ancient history for admission to college. All students should be required to take Ancient history in the first year in the high school. Then those who are going to offer Ancient history for admission to college should be given a review-course of, say, two periods per week in the fourth year. This course should take up some advanced subject-matter and afford special opportunity for training in method. There should be collateral reading in secondary and primary courses. The student should be taught to distinguish between these. There should be written digests and reports in which the student should be taught to give exact references. Special attention to geography and map work should be given There should be some lecturing and the student should be taught and drilled in note taking. These exercises together with such practice in the use of books, atlases, etc., as was recommended above for all students should prepare the student to begin his college work. It is the lack of this technical training of which college teachers complain most. English and American history coming in the third and fourth years, practically meet the college requirements or can easily be made to do so by giving special attention in this technical training to those students who expect to go to college.

This plan is a practical working scheme in which the college preparatory work interferes very little with the general culture course, and it has the additional advantage of preparing the student fully for college even if he has not decided on a college course until the last year in the High School.

The committee on resolutions presented the following report, which was adopted:

RESOLUTIONS.

As each session of this, the second annual meeting of the High School Department of the Pennsylvania State Educational Association has been interesting, helpful and inspiring; as it has shown us more clearly some of the educational needs of our state, be it resolved;

1. That we sincerely thank all who have in any way contributed to the success of this conference.

2. That we express our high appreciation of the interest shown by our State superintendent, Dr. Nathean C. Schaeffer, and that we thank him and Dr. Paul H. Hanus for their instructive and inspiring addresses.

3. That we thank Professor Cheesman A. Herrick and those associated with him for their able report on High School Supervision, and that we pledge him our earnest co-operation in bringing this subject to the attention of our representatives.

4. That the untiring efforts of President G. D. Robb and the executive committee in arranging and presenting the excellent programme of this meeting merit our most hearty approval.

5. That we thank the Board of School Directors of Williamsport, Superintendent Lose and Principal Bullard for the many courtesies shown this association.

Signed: H. D. Hopkins, Ella G. Burley, T. E. Garber.

The following motion by H. K. Hopkins, seconded by Professor Herrick, was adopted:

Moved; that the executive committee be instructed to send out with the next year's programme a circular to Boards of Controllers calling their attention to the meeting and asking them to pay the traveling expenses of a delegate to this conference.

Principal Davis, of Steelton, announced that the committee on College Requirements could not report, as only two members were present.

The last paper on the programme was by Superintendent Wm. Krichbaum, of Washington, Pa., in answer to the question,

## UNIFORM COURSES OF STUDY IN PENNSYLVANIA HIGH SCHOOLS.

Of the several elements which enter into the preparation of young men and women for the duties and pleasures of life in fullest measure, school education is certainly one of great importance; and all will agree that omitting school associationship two factors determine the value of school education: First, the branches of study, what they are, the order in which they are taken up, and the amount of time, both absolute and relative, that is devoted to each branch; second, the character of the instruction, in which is included, in addition to the didactic element, the personality of the instructor and his moral power. I need but to call on him who has, at some period of his life, come under the instruction of a really superior instructor to witness the assertion, that, of those two factors the second far outweighs the first, and that *who* teaches and *how* he teaches are of more vital importance than *what* is *taught*.

The Course of Study is, however, a matter of great importance, though it be secondary to the character of the instruction. Consider in the first place that a course of study is of a mediate nature. To obtain certain ends, which are more or less specific, a course of study is, figuratively, traversed. Whether school education be viewed from the side of information or from the side of culture; whether, for example, we pursue the study of music that we may subsequently make our living thereby, or as a stimulus to the idealizing faculties of the soul; whether we pursue the study of chemistry to train the mind to the habits of observation and induction, or to sell our knowledge, as merchandise, in the markets of the world; it is always the case, that instruction and the studies themselves are but means to the ends we seek to attain. On the one side are certain given conditions, on the other side certain more or less definite ends: between these lies the course of study, as a road by which one may get from one to the other. If the conditions are uniform and the ends identical, uniform courses would be the logical means.

Let us examine very briefly the social, industrial and institutional conditions in Pennsylvania to-day and look also at the ends for which the various communities maintain public high schools, bearing in mind that these conditions just referred to, determine to a greater or less degree the objects to be attained; and that this is true on the culture side, too, though more obviously so on the so-called practical side. To illustrate; Given the conditions of an agricultural community, this community will not set up, as an end of high school work, the preparation for a classical course in college. Now the conditions of life in this state, so far as concern society in general, industry and possibly local institutions, are exceedingly diverse. No state in the Union is more an aggregation of sections than is Pennsylvania, each dominated more or less by one of the great divisions of human industry; whole counties and even groups of counties are given to mining almost entirely; in other large portions of the state agriculture is practically the only industry; manufactures, the most varied, which include iron, steel, clay, cotton and woolen fabrics, shoes, glass, carpets, etc., give employment to hundreds of thousands of persons, who are usually localized with respect to one or more of the products of the shops; business and transportation are naturally localized to a degree. Again, whole communities are made up almost entirely of retired farmers and business men, men of leisure. Moreover, Pennsylvania, the state of all the most heterogeneous originally with respect to nationalities and religious tenets, has maintained her primitive characteristics; these features having become more accentuated with the increase of her population and the diversity of her industries; within her borders are to be found more religious bodies than within any other equal area on the globe; large communities have preserved, though in a grossly mutilated state, the language of the fatherland for above a century and a half; other localities are inhabited by emigrants from the southern and eastern nations of Europe (and the number of such communities is fast increasing) who can neither speak our language nor share in the spirit of our free institutions. Between the culture conditions of such communities and of communities which are centers of wealth and of a high social development, the interval is very great, scarcely realized, seldom considered. Pennsylvania is so markedly local in every respect that her citizens have with few exceptions never attained more than a local reputation nor done more than a local work. Is it possible that children, the outgrowth of conditions so diverse, whose minds are moulded by national, religious, social, industrial and, I may say, geographical influences so exceedingly varied, can be wrought into the several forms required for carrying on the work in their local communities by the simple means of uniform courses of study in their high schools? The assumption is unwarranted, and schools whose courses of study are based on such an hypothesis, will ultimately be regarded by the people as excrescences and not an organic part of their

community life; the ranks of the High School children will be thinned; the public will grudge and finally refuse such schools support financially and otherwise, and deny them worth and honor. Attempts on a much smaller scale to translate a course of study bodily into a community whose conditions demanded something quite different, have not infrequently produced such deplorable results. Are there High Schools to your knowledge, where the Superintendent, when he asks for a larger appropriation with which to pay salaries of High School teachers, to equip a laboratory, furnish supplementary text books, is met by a refusal? Where a suggestion of adding a fourth year to the course of study is frowned down and, if added, it is done only after a battle? Where the number of pupils does not increase in proportion to the population? Possibly the trouble arises from the course of study not being fitted to the conditions. When the High School is not patronized, when the Business Colleges and private schools are to any great extent, you may take it as a protest against the public schools. The people are not getting there what they want, what they need or what they think they need. If the fault is not with the teaching, examine the course of study and the history of its introduction. Possibly you will find that some one had gone to some other state, found there a good, strong course and imported it; it may be that he derived it out of his own brain from *a priori* ideas of what studies serve best to cultivate the mind, and had given too little consideration to those local conditions which dare not be ignored if the high school is to be an efficient factor in the life of the community. The town, the township, the county even may be a community within my meaning; even some states, but not states like Pennsylvania. Some cities may constitute two or more communities. For the school is but a phase of the community life, which asserts its individuality especially in the High School; and it is an error to believe that an institution dependent almost entirely on local support, can be successfully maintained out of harmony with those conditions which it is the school's mission to meet. It is a mistake and one not infrequently made by a new man, to begin his work by changes in the course of study before he is sufficiently well acquainted with conditions to realize what the needs of the community are. I think that is one thing that had better be done last than first; instead of making a course of study, so to speak a jointure at the door of the church, it were better for the Superintendent to make of it a parting legacy. A course of study may be a success in one place and a failure in another because it fits or does not fit the conditions. Even as Saul's armor did not fit David.

Turning to the ends to be reached, I would observe again that they are closely related to the conditions of community life and grow out of them. By these ends are to be understood the objects which a community has in view, in educating its children in High Schools. It is admitted that general culture as an end in Education may be obtained by almost any course of study. But the ends here to be thought of are chiefly the practical ones, that is—What do the pupils intend doing when they leave school? As what they will do varies, so should their course of instruction vary. To illustrate: what pupils who live in a rural community will do after leaving school is not the same as what those in a manufacturing community will do; this differs in turn from what pupils in an educational center, or what pupils in a commercial center, or what the pupils of a wealthy residential town will do after leaving school. To be more specific, great corporations like the Westinghouse Company, the Pennsylvania or Reading Railroads, the great steel and other manufacturing corporations which have shops located in a number of towns of the state, realize that boys trained along certain lines of study in school are more useful to them in their shops, and consequently encourage the schools to prepare the boys along the lines of mathematics, physics, mechanical drawing and bench and iron work. Sometime ago I was in a High School in Pennsylvania where I saw some exceptionally fine work in mechanical drawing. Inquiring of the Superintendent the reason of this excellence, he informed me this was the result of four years' training and that they were induced to offer this advanced work in drawing because it fitted the boys better for the trades which many of them learned in the machine shops, of which there were large ones in the town; he also added that the owners of these mills had donated large sums of money to the public schools from time to time. On the other hand a boy attending a rural high school, would devote his time more profitably to those natural sciences which are represented in the economy of the farm—the care and breeding of stock, vegetable and animal pests and parasites, chemistry of the soil, etc. Again, the objects of public schools in a wealthy, conservative, residential town are quite different. Here general culture is common; and here many of the pupils pass from High School to College, and thence to some professional school or simply settle down with their fathers in their fathers' business. Towns

which can boast of a College, and Pennsylvania has a number of such town, of necessity modify their courses to meet that condition. Instances of a similar kind could be multiplied but sufficient have been given to show that in Pennsylvania neither conditions nor ends are sufficiently similar to warrant uniformity in the courses of high school instruction. It may be objected by some that pupils in the country or in a commercial town may move elsewhere for their life's work. I would say that a community must be presumed to prepare her youth for her own needs and not for the needs of some other community and that, I believe society in this state, is tending toward a greater fixedness of abode.

We come now to look at some of the advantages arising out of uniformity. That there are some there seems to be no question; that some are more apparent than real; that some of the others are artificial and consequently costly, I think will be evident on due reflection. First it will be contended that uniform courses of study will enable the public to know exactly what the schools are doing, by the public being meant all persons who desire to know; men who employ boys and girls immediately after their leaving school; school authorities in other districts to which pupils may remove; the management of Acadamies, Colleges, Universities and Technical Schools. Now does this contention possess its prima facie value and force? It seems to me that it is quite possible and not difficult for persons desiring to know what work a pupil has done, to do so without uniform courses of study thrughout the state and that by the simple device now commonly used, a statement by the Principal. But if by the contention is meant that the interested parties will know what the pupil's attainments are, it is clear that uniformity of courses will be no more efficient to convey this information than would the simple certificate stating the branches and time given to their study; because the determining factor, the character of the work done by the pupil and the teacher, would not enter into the course of study.

Second, it may be urged that the inconvenience experienced by pupils passing from one community to another in adjusting themselves to a new course of study would be obviated by uniformity. Now this is true to just that extent that the inconvenience is due to changes in the course of study. But part of the inconveniences arise from other causes. Let us eliminate the other factors in the case; let us eliminate the newness of the surroundings to the child, differences between the new and the old ways of doing things, and let us remember that oftentimes the boy coming from the outside and not doing well, seems to be doing a great deal poorer work than one of our boys does. "You know" says the teacher "this boy is not from our schools." Making allowances as thus indicated you will see that all of the trouble is not due to the difference in the course of instruction.

Readjustment in schools as elsewhere is effected with some temporary loss; but the loss is not due entirely to lack of uniformity in the curricula of the schools of the state and could consequently be corrected by uniformity only to an extent proportional to the degree to which it is a factor. Moreover, the loss is but temporary and the change subsequently beneficial. The boy in such a case may be likened to a plant that has been re-potted. For a few days he may droop but soon he will respond to the stimulus of new soil and new conditions. Much of this apparent loss could be obviated by the exercise of broadminded, sympathetic common sense on the part of the Principal. A slight modification of the programme on the part of the Principal, a little additional work on the part of the pupil for a few months, would solve the difficulty in most cases. This evil will appear less when the number is considered to whom it applies. I am not able to speak with knowledge for many High Schools over the state, but so far as I have knowledge I doubt that as much as five per cent. of the pupils coming into High Schools come from other towns; and in border counties, the number which it is proposed to correct by uniform courses in Pennsylvania would be further reduced by the fact that a large fraction of the new pupils come from other states. Therefore, if you will consider this contention which is no doubt to a certain extent a just one, I am convinced you will find it not so extensive as to constitute a serious defect in our schools.

Another consideration is the effect uniform courses would have on the weaker High Schools—schools that are too weak financially and numerically to offer more than two years of very general High School training and in this category I include High Schools with a nominal three years' course which accomplish about as much as a good High School does in two years. I think there is unquestionable evidence that these schools are going at too much of a go-as-you-please gait. They surely need systematizing and courses of study prepared on some scientific basis. Uniformity would be especially applicable to these schools because they do not fit their pupils for anything in particular and consequently their individuality would not be seriously inter-

fered with. I would not be construed as speaking derogatory of these schools. Some of them to my own knowledge are doing most excellent work; and struggling as they are, very often amid most inauspicious and discouraging circumstances, I may say, are doing heroic work. Patiently and obscurely but none the less determinedly, the Principals of these schools are hewing their way through the ignorance and penuriousness and apathy of their communities and forcing recognition of the worthiness of education. These schools it appears would benefit by the plan under consideration and this fact renders it worthy of our best thought. Besides giving to these schools a systematized course of study, the introduction of uniform courses throughout the state would unquestionably result in raising the standard of education in these schools by requiring branches to be taught not now being taught, by better arrangement of subjects, and indirectly by a better grade of instructors in a large number of cases. Whatever form the proposed plan for uniformity may assume, the ideal school taken as a standard, would doubtless be an advance over the majority of these schools, and the tendency of uniformity would consequently be toward elevating the work done in them. The apparent effect upon these schools would be beneficial. Let it be granted for the moment that this would be the case: is it just therefore to conclude that a plan for making courses of study uniform in all the high schools of the state would be wise and salutary? I answer, no. From such action there would arise two other kinds of consequence: the first, the remote effects upon these lower grade schools; and second, the collateral effects upon the better grade school; and before acceding to this plan I would have it made clear to me that these ultimate results would be beneficial on the lower ones and at least neutral on the higher ones.

First, the remote effects upon the weaker High Schools. If these courses of study are to be anything more than suggestive outlines, you must assume the introduction of an external *force* into the life of the community, and one not springing spontaneously from the local social organism. To a certain extent these places must be taken under tutelage; the opportunity to think for themselves and to work out their own problems must be denied them; you must say in substance that the principle which overcame the danger and difficulties of settling a new world, which has made the only successful existing democracies, which meets the various social, governmental and industrial problems as they confront the nation from time to time, you must say that this principle of allowing each community the right to express itself as it chooses with the least possible constraint consistent with the rights of others, is either not adapted to or not efficient for solving educational problems. Though there be communities that are educationally weak, though there be unorganized High Schools, I am not prepared to admit any are so bad as not to be worse off *ultimately*, if their local prerogatives are curtailed by the state acting at large at the suggestions of pedagogical theorists. Even the rights of these less prosperous and intelligent communities to attend to their own business in their own way, belongs to them, and should not be denied them. Second, the collateral effects upon High Schools of the higher grade, and briefly. If courses of study are to be made uniform in order to systematize and elevate the character of the work done in the struggling schools, the better schools would be compelled to grade their work down to the standard attainable by these lower ones. I know this may be contradicted by some, but it is the inevitable and logical tendency of uniformity. This would be disastrous and impracticable on the face; it would mean in effect, the sacrificing of the better schools to the interests of the weaker ones.

Against the whole idea of uniformity and the principle which underlies it, I wish to urge several objections, which, in my judgment, are sufficient to render its application in Pennsylvania undesirable and well-nigh impossible.

The first one (and I have already indicated it) is that such courses are not well adapted to any particular place, or at best, not to many places. If the course adopted be an ideal one, it would probably be adapted to ideal conditions only. Pennsylvania does not possess them,—not in a large measure. If the course adopted be one now in operation in some locality, it will be found to fulfill the needs only of such places as present closely similar conditions. To require the better schools to move downward to meet the poorer ones on common ground, would be absurd; to demand that the inferior attempt the work of the higher would result in sham and failure. Uniformity and adaptability are directly opposite each other *ex vi terminorum*, and no device known to me can reconcile uniformity with local individuality.

Besides, being unadaptable to the individual uses, to which they are to be applied, such courses are not progressive. After the first years of struggle to get courses at all workable; after the frequent revisions, there will ensue a period of immobility, lifeless and without the circulation of new ideas to meet changing conditions.

Changes will become more and more difficult to make, as the body to be moved becomes larger. Experiments in education would of necessity have to be made on the whole state, and will consequently be very costly and seldom attempted. A state is not a vile body.

Viewed historically also, it does not appear that uniformity in anything is conducive to progress. It is impossible that progress along any line should be made uniformly, and history will offer no real exceptions to this statement. Every progressive movement has had a local genesis; from that place it has spread to neighboring parts and has thrived there just as conditions furnished a favoring soil, so it will be in the future with educational progress.

Just a few words on how to accomplish the results aimed at by uniformity, through other means.

The leading communities throughout the state should exalt the profession of teaching until it stands upon a footing as high as that upon which any other profession stands; the teachers should make themselves worthy of such consideration and then demand it from the public. School authorities can do this by choosing only capable men, men of judgment, training, address and energy; by paying them such salaries as become high grade men in a noble profession and such as tend to raise the community's respect for the teacher's profession and by giving them a secure tenure of office. Mean salaries will make mean men; for how can a teacher act on a generous impulse, a philanthropic sentiment, a broad culture, humanitarian instinct, when he knows that to do so means inconvenience to his family now and loss of independence or want to himself in his old age. How can a community in this age, when everything almost depends for its rating upon its money value, expect its youth to give honor to men whom it pays less than bricklayers or the rank and file of railroaders receive.

Better pay would enable school boards to employ better men. Of course some school boards might not make the best use of their money, just as an individual may not get his money's worth at the market-house. But in general, the betterment of the conditions of salary and tenure, would strongly tend to give communities, for leaders in Education, men who have the ability to evolve a suitable course of study from a consideration of local surroundings and of the values of studies. The responsibility of raising the standard of High Schools throughout the state, would then lie to a great degree upon those leaders in the better favored communities. It would then rest with them to prove to their people that High Schools pay. The effect will in time be apparent in the lower grade schools. Let it once become known that boys and girls from the better High Schools are notably better fitted for the duties of our present civilization, the response will not be long in coming from the lower grade High Schools. This advantage must be shown and shown clearly. Many people in this state regard Education, beyond the most elementary, as all right but not worth much; at least not essential for success in life. To the better High Schools the duty falls to correct this notion and to prove that they are of value to their respective communities and they will thereby, not only justify their own existence and cost, but will be the most effective means of raising the grade of work in the majority of the schools of the state. Of them, to whom much is given, much is required. Considering the nature of mankind this method of advance is logical and has the sanction of historical fact; it would prevent a step toward centralization of authority; it would preserve the individual rights of the community; it would stimulate all communities to independent effort; and would mete out to each community the educational benefits to which its own efforts have entitled it.

## USE OF PICTURES IN TEACHING.

BY WILL S. MONROE.

THERE is a maxim in German educational literature which reads: "Das Bild spricht beredter als die beste Schilderung die wir hoeren oder lesen," which translated means: "The picture speaks more eloquently than any description which we may hear or read"; and this maxim is the basis of much of the best instruction in the elementary schools of Germany.

Comenius was the first great educator to recognize the educational value of pictures, and his Orbis Pictus was the first effort to introduce pictures into school books. It had an extraordinary success, and has served as the model of the innumerable illustrated books which have invaded our schools during the past two and a half centuries.

But illustrated books lose much of their value because so little use is made of the picture in the work of school instruction. Teachers assume that the pictures are placed in the books for the edification of the children, and doubtless much real and profound pleasure is derived from inci-

dental and accidental perceptions of illustrated school books. More formal use, however, might be made of pictures for purposes of instruction in history, geography, and literature.

I recall with great pleasure a picture lesson that I once saw in an elementary school in Paris. It was based upon a study of photographs of the Madonna, and was a study of the individual figure—the Virgin without the Child. Photographic reproductions from four paintings had been given the children for study; and as an aid in preparation for the class recitation, the teacher had written a few well-directed questions on the blackboard. The four pictures which formed the basis of this lesson were Fra Bartolommeo's Madonna enthroned with the saints, the panel picture of the Madonna by Van Eyck, Angelico da Fiesole's "Coronation of the Virgin," and Murillo's "Immaculate Conception." There had been no book work on these masterpieces of sacred art,—simply a study of small photographic reproductions. But the lesson developed in an orderly manner; and the fine sentiment which pervaded the answers of the children indicated how keenly they had caught the beauty and religious fervor of the artists.

Training children to read good pictures, particularly reproductions of great artistic conceptions, should be a feature of the art education of every child. Such study not only familiarizes the child with the masterpieces in pictorial art, but trains as well the critical faculty, which gives ability to recognize faults in art productions as readily as errors in speech. The need of the American school is not more works of art for purposes of study, but more study of the works of art already at our command, and less time to the study of books about works of art.

Geography and history may both be well taught by means of pictures; and most of our text-books on these subjects are excellently illustrated. But the pictures should be studied no less than the text. In fact, the picture should often be preferred to the text. Plan and method are essential in such picture work. Sometimes it may be sufficient to ask the children to find out all they can from the picture. If it is of a landscape, to ascertain what the picture tells concerning the structure of the country, the climate, the plant and animal life, the people, etc.

A second plan might be that of the French teacher noted above—the preparation of a few searching questions by the teacher and the use of the same by the children in their study for the class recitation.

A third method might employ topics, and the children asked to write what the picture tells them concerning each topic.

A fourth plan might permit the children to prepare a list of questions on the picture. Children should be trained to study pictures no less than printed books; and the picture, as pointed out in the German maxim already quoted, often gives the child more lasting and vital information than the book.—*N. E. Journal of Education.*

## A LIVE SCHOOL SUPERINTENDENT.

BY LAWTON B. EVANS.

ONE of the secrets of success in the work of a school superintendent is to keep things moving, the people interested, and the teachers inspired. As soon as the superintendent gets tired everybody stops work. The community, the Board of Education, the teachers, and the pupils generally move at his pace. He sets the step, he beats the time, he is the standard-bearer. As the superintendent so are the schools. All sorts of things can be done to keep from getting old and "going stale" as they say in football circles. A number of postal cards sent to the best people in the community bring to the office a quantity of magazines, illustrated papers, and discarded story books, which the county teachers can get by calling for them, and which the country child is eager to see and read. Having learned to read he wants something to read. A twenty-five dollar magic lantern has delighted many a village people and brought many a five dollar library to a hungry school. A word to the county authorities has engaged the country road force to clear up school grounds, plant trees, grade the yards, lay out croquet and tennis courts, all without cost to the school. In fact all that is necessary is to be alive, to be worth the money, to really care to think about the business, and to sit up nights planning for the next day. It requires energy to do it and thereby hangs the difference between a superintendent that is worth while and one that merely holds office.

## HASTY JUDGMENTS.

A YOUNG professional man of about thirty-five, who passed each morning on his way to business through a certain residential street, possessed to a marked degree the faculty of exciting the animosity of the neighborhood. The people did not know him or his business, but his jaunty air of self-satisfaction, the perfectly patent self-conceit which irradiated from his every motion, the peculiar little twist and quirk at the end of his mustaches, the evident contempt with which he contemplated the whole inhabited universe, created irresistibly in the normal man a desire to molest him.

The opinion of the neighborhoor concerning that young man, who suggested the "popinjay" that caused Hotspur's ire to break bounds on the field of battle, was settled and fixed, and in all probability would never have been changed but for a mere chance. There was a terrible accident in one of the houses near which the man passed, and he happened to be passing the house as the accident occurred. He rushed to the scene among the first, made desperate efforts to aid, and when the injured had been taken to a place of safety he set about the dressing of their wounds.

He proceeded in a thoroughly workmanlike manner, showing himself a highly skilled surgeon and physician. The mere pose and affectation, which were so conspicuous a part of the surgeon to the superficial observer ignorant of the man, were cast aside, and the man himself was seen to be the surgeon of nerve, force, decision and exceptional attainments—humane and conscientious.

The opinion of the neighborhood was instantly reversed. The opinion of the world is nearly always reversed when the heart of things appears stripped of the externals. One of the most engaging essays on the folly of rash judgments is that by Charles Lamb, entitled "Christ's Hospital; Five and Thirty Years Ago." And no comment on the subject is more just or more acute than that by old Sir Thomas Browne:

"No man can justly censure or condemn another, because indeed no man truly knows another. This I perceive in myself, for I am in the dark to all the world; those that know me but superficially think less of me than I do of myself; those of my near acquaintance think more; God, who truly knows me, beholds the substance of things without the helps of accidents, and the forms of things."

The world is prone to judge by first impressions and from appearances, and the world is proverbially unjust. Common judgments are formed without taking into account the circumstances of the case, the person's individual capacity, his moral responsibility, his power to resist temptation, the environment of his early life, his mental force. Every physician and every judge knows that our whole life is a rough-and-ready system, and that we are dealing in "brutal approximations."

"Responsibility is measured, not by the amount of injury resulting from wrong action, but by the distinctness with which conscience has the opportunity of distinguishing between right and wrong."

That is a positively just and righteous statement of the case for moral responsibility. Intelligent physicians in handling cases of alcoholism have the truths of impaired moral responsibility borne in upon them with terrible directness. One man cares nothing for liquor, and conceives the utmost contempt for the slave to drink who will not bridle his appetite for the poison which drags his family down into the gutter with him; but the wise physician knows that in a great many cases the reason the victim will not curb his desire is that he cannot; he has not the will. The explanation of his case must be sought in parents of feeble or diseased body or mind; in a line of ancestry that has been given to drink or that has impaired by some other excesses the stamina of the descendant. In many cases the environment of the child in early years has been such as to result in a weak product whose physical structure predisposes him to excesses and cravings, whose lack of training in self-control leaves him a ready prey to strong desires.

These facts are terrible truths which cannot be ignored. Often an experienced judge or a skilled physician can tell at one glance a good deal of the family history of the defendant or of the patient. It is seen at a glance that a human weed has been produced, and this weed is to be subject to the same human judgments as the cleanly, vigorous, educated, strong, trained man who sins against the light.

The unequal moral responsibility of different men has led to many dangerous suggestions. People of sensitive natures, touched to the quick by the apparent lack of equity in judging people of feeble wills with severity in courts, have talked of the "higher law" in dealing with these cases; but it must be apparent that there is no way of applying the "higher law" in this world inhabited by mundane creatures. The processes of that tribunal do not run, and no man and no set of men, and not all the assembled wisdom of the world, ever could determine the moral responsibility of

any individual. No man in the world can estimate what is in another's mind, or what is the strength of his will in proportion to the temptation, or what part is played in heredity or environment in fixing a man's physical or moral stamina. These are all hidden things.

It is true that a murderous burglar may have been brought up in vice and squalor; that his parents were vicious and weak, and that his desires were strong and his will weak; but if burglars and other malefactors were freed or leniently dealt with life would not be safe. The application of the law to the affairs of life is no doubt a series of rough and faulty approximations, but it is the best we can do. We must accept it, but there is a wide field for the exercise of a broad and tolerant attitude in estimating the moral responsibility of individuals in every aspect of life, and there is tremendous opportunity and duty for very human being to do something—only a little thing—toward the removal of the evils which drag people down, impair their wills and steep them from early years in vice and ignorance. If civilization means anything to thoughtful men in these days, it must mean that every one is to a certain extent his brother's keeper.—*Philadelphia Ledger.*

## EPITAPHS ON SOME FACES.

MANY people are walking tombstones. Written on face and form is the visible epitaph of a grace or a goodness which died and was buried in their lives. In the hard lines of a face one reads: "Here generosity departed years ago." Another countenance with its sensual heaviness tells so that all may see: "Purity came to an untimely death in me." A woman's face, in the look of pettishness or bad temper fixed there, announces: "All pleasantness departed this life when the first burdens and discouragements began to come."

Indeed, it were possible, if one chose so to do, to go through a city street as old-fashioned folks used to visit cemeteries, and spend our time reading the epitaphs written in the tombstone faces we pass there. Life was meant for life. Men must fight against making spiritual graveyards of themselves. The old command, "Therefore choose life," we must apply not only to the heavenly life of a resurrection day, but so as to urge men away from the death and burial of their souls in their bodies.

We must be guided by it so that our lives may not become cemeteries of dead hopes, dead gifts and dead graces. Rather in the words of the patriarchal benediction, may our lives become as "a fruitful field which the Lord hath blessed."

Hear the Word which says: "I came that they may have life, and may have it abundantly."—*Sunday School Times.*

## A SERMON WITHOUT A TEXT.

BY LOUISA M. ALCOTT.

WHILE at a station recently I had a little sermon preached in the way I like, and I'll report it for your benefit, because it taught me one of the lessons which we all should learn, and taught it in such a natural, simple way that no one could forget it.

It was a bleak, cold day. The train was late; the ladies' room dark and smoky, and the dozen women, old and young, who sat waiting impatiently, all looked cross, low-spirited, or stupid. I felt all three, and thought, as I looked around, that my fellow-beings were a very unamiable, uninteresting set.

Just then a forlorn old woman, shaking with palsy, came in with a basket of wares for sale, and went about mutely offering them to the sitters. Nobody bought anything, and the poor old soul stood blinking at the door a minute, as if reluctant to go out into the storm again.

She turned presently and poked about the room as if trying to find something; and then a pale lady in black, who lay as if asleep on a sofa, opened her eyes, saw the old woman, and instantly asked in a kind tone, "Have you lost anything, ma'am?" "No, dear. I'm looking for the heatin' place to have a warm 'fore I goes out again. My eyes is poor, and I don't seem to find the furnace nowheres."

"Here it is;" and the lady led her to the steam radiator, placed a chair, and showed her how to warm her feet.

"Well, now, is not that nice?" said the old woman, spreading her ragged mitten to dry. "Thank you, dear; this is comfortable, isn't it? I'm mos' froze to-day, bein' lame and wimbly, and not selling much makes me kind of down-hearted."

The lady smiled, went to the counter, bought a cup of tea and some sort of food, carried it herself to the old woman, and said as respectfully and kindly as if the poor woman had been dressed in silk and fur, "Won't you have a cup of hot tea? It's very comforting such a day as this."

"Sakes alive! do they give tea in this depot?" cried the old lady in a tone of innocent surprise that made a smile go around the room, touching the gloomiest face like a stream of sunshine. "Well,

now, this is jest lovely," said the old lady, sipping away with a relish. "This does warm my heart."

Whilst she refreshed herself, telling her story meanwhile, the lady looked over the poor little wares in the basket, bought soap and pins, shoestrings and tape, and cheered the old soul by paying well for them.

As I watched her doing this, I thought what a sweet face she had, though I'd considered her rather plain before. I felt dreadfully ashamed of myself that I had grimly shaken my head when the basket was offered to me; and as I saw the look of interest, sympathy and kindness come into the dismal faces all around me, I did wish that I had been the magician to call it out.

It was only a kind word and a friendly act, but somehow it brightened that dingy room wonderfully. It changed the faces of a dozen women, and I think it touched a dozen hearts, for I saw many eyes follow the plain, pale lady with sudden respect; and when the old lady got up to go, several persons beckoned to her and bought something, as if they wanted to repair their first negligence.

# EDITORIAL DEPARTMENT.

## THE SCHOOL JOURNAL.

LANCASTER, FEBRUARY, 1907.

N. C. SCHAEFFER. - - - - J. P. McCASKEY.

IN the way of State buildings at the coming Jamestown Exposition many historical structures of the colonial period will be presented. In point of interest and importance Pennsylvania will be in the lead with a reproduction of Independence Hall, only one fourth less in size than the building as it stands in Philadelphia. Virginia will construct a typical colonial mansion; Maryland will have for its model the home of Charles Carroll, one of the signers of the Declaration, and one of the rooms is to be fashioned after the chamber in the old State House at Annapolis, made of peculiar historical interest by Washington; Connecticut will reproduce the old Talmage home, the first colonial mansion erected in that State; Massachusetts will build on the model of its first State House in which the original Constitution of the State was adopted; Rhode Island will also reproduce its first capitol building. The Georgia State building will be copied after Bullock Hall, the birthplace of President Roosevelt's mother, at Roswell, and Ohio will reproduce the first stone house erected west of the Allegheny Mountains and which was for some years the executive mansion of the State. All around the exposition, evidently, the most conspicuous structures will be reminders of the colonial times, and they fit well into the scheme of the undertaking.

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The fourth annual meeting of the Department of County Superintendence of the State Association will be held in the auditorium of the Harrisburg high school February 12th and 13th. After the address of the president, Supt. Alvin Rupp, at 2 o'clock Tuesday afternoon, Supt. Frank H. Jarvis will discuss "Teaching as a Profession," followed by Supt. Bevan on the same topic. Supt. J. A. Wright will present a paper on "Closer Supervision of County Schools," followed by Supt. Stearns. At 7:30 p. m., after music by the high school, Dr. N. C. Schaeffer will address the department on "Child Labor and the Public School," followed by Supt. Samuel Hamilton on "Our American Public School System." The first paper on Wednesday morning, "School Revenues, or the Tax Problem," by Supt. B. S. Boyle, with discussion of same opened by Supt. Fetzer. This will be followed by Supt. W. W. Evans in answer to the question "Shall We have a State Course of Study?" The discussion of this paper will be opened by Supts. Milnor and Kilgore. At 2 p. m. Supt. J. W. Sweeney will show "How to Make the County Superintendency More Efficient," followed by Supt. Landis. Supt. H. S. Putnam will present the last paper of the session, "To What Extent should the State Support and Control the Schools?" Supt. Smith, of Delaware, will open the discussion. The papers are limited to twenty minutes and those opening discussions to ten minutes, so as to afford time for more general discussion.

The officers of the department are Supts. Alvin Rupp, president; W. R. Longstreet, secretary; and J. W. Snoke, treasurer. Supts. J. C. Taylor, J. Milton Roth and Ira N. McCloskey are the members of the executive committee. It is hoped that the County Superintendents will be very largely represented at this meeting.

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Prof. J. M. Tyler of Amherst College, says: "If I had the power, I think I would make a law—and enforce it, too—that every child born in a town of 10,000 inhabitants

or more should have at least one grandparent living on a farm in the country; and I would have that child stay with that grandparent at least three months in every year of its youth."

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At a recent meeting of Jewish societies in Philadelphia, Dr. Henry Berkowitz made an address on "Personality in Teaching." He said in part:

"'The whole world depends on the breath of the school children,' said our sages. But the very life and soul of the child depend upon the teacher. In its most intense application this truth refers to the teacher not of manual training, technical skill or intellectual culture, but to the teacher of religion. The functions of all teachers are identical in the aims and methods of imparting knowledge and often fuse in the sphere of moral training. There is, however, a strong line of differentiation between secular and religious schools which is emphasized by the American principle of absolute separation of Church and State, viz., the fact that in the public schools all reference to matters of religious belief and all forms of religious practice must be rigidly excluded in deference to the great principle of religious freedom, for which we stand. The distinct province of the schools of morals and religion is thereby plainly marked out. It is the function of a religious school to apply what the secular schools may not, must not touch, and that is the authority which makes morality mandatory. Whether it be merely the doctrine of utility, a system of transcendental philosophy or a divine revelation, however broadly interpreted, some definite and binding authority as the source of obligation must be carried home with conviction to the pupil; the solemn sanctities which seize upon the soul must be effectively utilized if we would create pure, reverent, righteous, self-sacrificing character. "How shall the teacher in a religious school meet and fulfil this grave responsibility? The ready reply is, By teaching the Bible, the world's greatest text-book of morals and religion."

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## NATIONAL ASSOCIATION.

THE next meeting of the National Educational Association will be held at Los Angeles in California. A "record" meeting would have been held in San Francisco last year but for the awful disaster of the earthquake and the fire. Even when the great city lay in ruins it was thought the Association might still hold to the Pacific Coast, convening either in Portland or Los Angeles. But in the general disarrangement of well-devised plans, it was finally decided to let the year 1906 go by without its annual session.

As the Association was organized in 1857 in Philadelphia it was supposed that the fiftieth anniversary of its organization would be held in that city. The eastern railroads have prevented that by refusing to grant the necessary extension of time upon the excursion tickets. This was not finally decided until January 24th, hence the delay in announcing the place of meeting.

While negotiations were going on the authorities received a very cordial invitation from the city of Los Angeles to hold the Anniversary Convention in that city, in case that satisfactory rates could not be secured for Philadelphia. This invitation was unanimously supported by the members of the State Teachers' Association held in Fresno and of the Southern California Teachers' Association held in Los Angeles, both during the recent holidays. It was accompanied by a guaranty of 5,000 advance members from the State of California, and assurances of 5,000 more from the other Pacific coast states and the Rocky Mountain states. The California terminal lines of the Trans-continental Passenger Association, viz., the Santa Fe and the Southern Pacific, accompanied this invitation with a guaranty of a rate of one fare for the round trip, plus the N. E. A. membership fee of two dollars, from Chicago westward, the membership fee to be collected in the usual way, with all other arrangements as precisely agreed upon for the San Francisco convention last July. It is believed that all officers and members of the Association will approve the action of the Executive Committee and will sympathize with the Committee in their disappointment in not being able to make satisfactory railroad arrangements for holding the Anniversary Convention in Philadelphia.

In this connection, it is proper to say that the teachers of Philadelphia and of Pennsylvania, under the leadership of Supt. M. G. Brumbaugh, were making preparations for a great anniversary meeting next July. It is also proper to acknowledge the untiring efforts on the part of Supt. Brumbaugh through the local lines to secure the necessary railroad rates and ticket conditions.

There will be a great meeting at Los Angeles. It will be the opportunity of their lives for many people, teachers and others, to cross the continent and visit the wonderland of the West and especially of Southern California.

## NEARLY TWO MILLIONS.

NEARLY two million children in the United States are breadwinners. The full extent to which child labor is employed in this country is set forth in a bulletin recently issued by the Census Bureau. The statistics presented are for 1906, and relate to the employment of children as breadwinners, of whom 1,750,000, in round numbers, between the ages of 10 to 15, were so employed. By far the most important occupation for children is that of agriculture, the number of children 10 to 15 years old so employed being 1,054,446. Next in importance comes domestic service, or the occupations of servants and waiters or waitresses, in which 138,065 children were employed, most of them being girls. About one third of the children employed in gainful occupations were 15 years of age, and more than one half were 14 or 15 years old. The number under 14 was 790,623, or 45.2 per cent. of the total.

Of the total number of child breadwinners 10 to 15 years of age 72.2 per cent. were boys and 27.8 per cent. girls. The percentage of breadwinners among negro children is much higher than among white children. The cotton mills furnish employment to children to a greater extent than any other manufacturing or mechanical industry. In 1900 the number of cotton mill operatives 10 to 15 years of age was 44,427. Of the 71,622 messengers and errand and office boys in the United States, 62 per cent. were district and telegraph messengers and errand boys, 23.3 per cent. were office boys and 14.7 per cent. were bundle and cash boys or girls. Nine tenths of the children employed in such service are boys.

The occupation of the textile worker, or the needle trades, furnish employment to 35,070 children between 10 and 15 years of age, of whom 5,136 were boys and 29,934 were girls. The total number of children 10 to 15 years of age engaged in the tobacco and cigar factories was 11,462. Of the 49,998 glass workers reported in 1900, 5,365, or 10.7 per cent., were from 10 to 15 years old.

Of the 23,657 children for whom statistics were specially compiled, 17,956, or 75.9 per cent., were living in homes with their parents; 3,380, representing 14.3 per cent., or approximately one seventh of the total, were living with widowed mothers, and 578, or 2.4 per cent., with mothers who were living apart from their husbands. The number of children that were either fatherless or were not living with fathers was 4,943, representing about one fifth of the total number.

The percentage of school children in the total population five to nine years of age, enumerated in the United States, was 53.3, which is only a little higher than the percentage (50.6) shown for the selected families included in this study. Of the number of children 10 to 14 years of age in these families only 31.9 per cent. were at school, while the corresponding percentage for the total number of children of that age in the United States was 79.8. In the families with child breadwinners, schooling rarely extends beyond the age of 13. Of the children 14 years of age, 97.4 per cent. were employed and only 1.6 per cent. were at school.

Of the total number of children 10 to 14 years of age in the United States, 7.1 per cent. were illiterate, as compared with 18.8 per cent. for the child breadwinners of the same age, included in this tabulation. For the messengers and errand and office boys the per cent. of illiteracy is comparatively small. By far the greatest degree of illiteracy is that shown for the children in cotton mills. In the South almost one half of the cotton mill operatives 10 to 14 years of age are illiterate and about one fourth of those 15 to 20 years old. The children employed in cotton mills in the North include large numbers of foreign born children, many of whom may have come to this country after they had passed the age at which children usually learn to read and had reached the age at which school attendance was no longer required by the laws in force in the locality which they settled. In such cases their illiteracy is not properly chargeable to the communities in which they are living.

Two thirds of the children are at labor on the farm, acquiring the habit of industry at the same time that they are learning the art of cultivating the soil, upon which all other art depends. But they should be given their full chance at proper school training, which leads so often from the farm to the high places of honor, responsibility and successful achievement in the wider field of the state. The remaining third of the large number of children employed are in the factories, the stores, the mines, the sweatshops, and elsewhere. Some children are hurt by too much schooling, falling into the fatal habits of idleness, irresponsibility, and dependence; others lose the best of life's possibilities from lack of early school opportunities under good teachers. The first should be helped by being put to physical labor; the second by giving to them their rightful privilege of life in contact with books and well-directed school work.

## TEACHING IN HIGH SCHOOLS.

THIS is practically a High School number of THE JOURNAL. All the papers read at the interesting meeting of the High School Department of the State Association, held at Williamsport during the week of the Christmas holidays, are given in full, with the proceedings in part, so that those of our readers who are thinking of high schools as high school work may know what the teachers in these schools are thinking and doing. At the same date, December 27th, at Syracuse, New York, Hon. Andrew S. Draper, State Commissioner of Education, made an address before the twenty-second annual conference of the Associated Academic Principals, on "The Teaching in the High Schools." It is a fitting supplement to the papers read, and we give it place in this connection, though the system of schools and method of uniform examinations differ much from our own. Dr. Draper is one of the foremost school men of the country and his views are always those of a "man of affairs," and worthy of attention. He says:

The excellence of the entire State system of education must depend very largely upon the excellence of the academic schools. If they were to be taken by themselves alone, the academic schools would not be as important as the elementary schools. Of one hundred pupils in the elementary schools about six go to the high schools and one of the six goes to college. But the academic schools are not to be separated from the rest of the school system. They supply by far the greater part of the teachers to, and exert a decisive influence upon the instruction in, the elementary schools. They are the goal of any intellectual ambition which germinates among the children of the elementary schools. Every system of schools needs a system above it to lift it up. Happily, the secondary schools have come not only to supplement the primary schools but to be an integral part of the common school system.

But apart from the elementary school system, they are giving a reasonably liberal education, a training in both efficiency and culture, to a steadily increasing number of young men and women who do not go to college. They are enlarging the opportunity of the masses and increasing the power of the thousands. Without any reference to their work in preparing students for college, they are quickening the energy and adding to the culture of our social, industrial, commercial, professional, and civic life.

If the elementary schools are dependent upon them the colleges and universities most certainly are. Unless the colleges articulate with the high schools their work limps. Students who go to college with inadequate or irregular preparation must have unusual intellectual resources or their hopes will be dashed to the ground and their intellectual lives wrecked. Schools which accept the responsibility of preparing for college are morally bound to do it completely.

It may well be doubted whether even teachers realize how thoroughly our secondary schools are the expression of our free and forceful democracy in education. They are our best assurance of real opportunity to the masses. All of the leading nations of the world have systems of elementary schools, and some of them attend to vital things in elementary education more completely and uniformly than we do. All of them have colleges and universities and technical and professional schools. But none of them has a universal system of schools connecting the elementary schools with the colleges, for none of them tries to make it easy for any child of the masses to go to college if he, or particularly if *she* will. The American high school is distinctly an American creation. It did not grow out of the needs of the colleges; it came from below, not above; it is not the product of any exclusiveness. It is the logical outgrowth of our intellectual progress; it is the pet instrument of the masses; it is the most common and universal and, next to the free State University, it is the noblest expression that we have of our fundamental political gospel that all men are created with equality of natural rights.

Then we may well make it just as strong as we can. In view of the aid which the State of New York gives to it, her officers are charged with the responsibility of trying to make these schools as uniformly efficient as may be. Much study has in the last two years been given to the subject. This study has developed several rather important surprises. The greatest of these is that, judged by results, and by the only test we have—a test which is equally just to all,—the high schools which show the best results are not in the cities but in the larger villages, and that the high schools in the smaller villages—often under the same roof as the elementary schools—average as much good work in proportion to students as those in the cities.

We have separated all of the answer papers received by the Education Department in the academic examinations during the last school year into three classes, (1) those coming from the cities, (2) those coming from villages of 5,000 or more in-

habitants, (3) those from the smaller villages. The figures show in each of these classes, (a) the whole number of answer papers written, (b) the number given the passing mark entitling them to acceptance by the Department, (c) the percentage of papers accepted, and (d) the percentage of honor papers (papers rated at 90 or above) to accepted papers: Answer papers written in cities, 84,772; in villages of 5,000 or more, 23,751; in smaller villages, 161,073. Answer papers accepted in cities, 56,741; in villages of 5,000 or more, 16,629; in smaller villages, 107,044. Percentage of accepted to written papers, in cities, 66.93; in villages of 5,000 or more, 70.01; in smaller villages, 66.45. Percentage of honor papers to accepted papers, in cities, 17.47; in villages of 5,000 or more, 15.25; in smaller villages, 11.01.

It will be observed that more than 60 per cent. of all the answer papers received were written in the smaller villages, though the percentage from the cities is likely to be larger hereafter, in view of the requirement that schools must use the examinations if they expect to share in the academic funds. The cities have been disposed to aver that academic examinations within the reach of the small schools are degrading to the standards of teaching and scholarship which prevail in the cities. There is little or nothing in the contention. The villages have been disposed to claim that the Department syllabus and the examinations have been suited to the highly organized and classified schools in the cities. There is little or nothing in that, either. The fact is that learning may thrive either in a great city or in a country village, either in a large class of a little one, either in a fine house or a plain one, if there are spirit and purpose, and the needed books and appliances, and above all if there is a real teacher there.

Of the 561 academic schools in villages of less than 5,000 inhabitants, 297, or more than half, excelled the State average in accepted papers or in honor papers in the June, 1906, examination. The State average was 65.9. There were 154 of these schools with an average of 70 per cent. or more; 96 with an average of 75 per cent. or more; 42 with an average of 80 per cent. or more, and 15 with an average of 85 per cent. or more.

It is not necessary to discuss all of the factors in the case. The tributary elementary schools, the physical life and intellectual qualities of the students, the absence of distracting amusements, work with individual students, and the earnestness that is commonly associated with life near the soil, are all involved in the problem. Books, apparatus and laboratories constitute a very important factor. There is sufficient reason for saying that the equipment in books and apparatus of our New York high schools and academies is, by reason of the excellent policy of the State followed for a long time, uniformly much stronger than that of any other general system of secondary schools in the world. The policy in this direction has been so liberal as to raise doubts about all that has been bought being capable of advantageous use. Then we come, as we always do, to the decisive factor in the problem—that is the teaching.

The carefully developed facts do not warrant any severe or general criticism upon the teaching in our secondary schools. Indeed, I am happier than you may suppose in coming to the very definite conclusion that the teachers in those schools are entitled to the very warmest commendation. Though but a minority of them have had the preparation which we must hereafter demand, they have in general made the most of themselves and met their responsibilities creditably. The schools have multiplied rapidly. The demand for completely prepared teachers has exceeded the supply. Strong men principals are scarce. The industrial activity is affecting the supply of teachers for all schools and particularly for the higher positions where the compensation is not commensurate with the higher requirements and responsibilities.

We need men who are college-trained at the head of all these academic schools. How can a school which prepares for college do its work without a college man at its head? How can any school in such a system of schools expect to be as good as others in the system without a college man at its head? I am far from thinking that there are not an endless number of men who have never been to college who know more of things very desirable to know than very many who have been to college can ever hope to know, but the headship of an academic school is a place which demands a man with the experience, the discipline, and the ideals of the man who has been trained in college. I am inclined for this purpose to include the holders of New York State certificates with college men, for I know that that certificate stands for the serious student and the forceful character, and for very considerable experience in teaching.

I said college-trained *men*. It was not an inadvertence. The place needs a man. Its conspicuity in the community, its relations to the educational activities of the State, the masculine qualities desirable in

its administration, the needs of the boys in the schools, all call for a man. There will be women enough in the faculty in any event to supply the feminine qualities which are desirable in the management of the school. This is not said in ignorance of the fact that women are not needed more than men in many places in the schools. Nor does it controvert the principle that a strong and good woman is better than an inferior man in any place in the schools. Every large work in which many people are associated needs the management of men and women working together. If the academic schools are to have even that, there must be men at their heads.

Emphasis has been laid upon the qualities and training of the principal because the competent and successful man in that position ought to effectuate suitable appointments throughout the faculty. But it must be said that we must work to the point of having *all* of the teaching in the academic schools done by college-trained men and women. New appointees in those schools should be so trained. And with the colleges turning out so many graduates, particularly so many women, there is no difficulty about it if the compensation is what is ought to be.

Further statistics bearing upon this subject may be interesting to those who like to interpret figures. There are 665 public high schools in the State. Of these, 69 are in the cities, 35 in villages of 5,000 or more inhabitants, and 561 in the smaller villages.

The teachers in these schools are classified as follows: College graduates, 1,824; holders of State certificates, 164; normal school graduates, 967; non-graduates of a higher institution, 465; total, 3,420.

In the city high schools the teachers are classified as follows: College graduates, 1,190; holders of State certificates, 84; normal school graduates, 238; non-graduates of a higher institution, 257; total, 1,769.

In the village high schools as follows: College graduates, 634; holders of State certificates, 80; normal school graduates, 729; non-graduates, 208; total, 1,651.

I am sorry to say that I am without the data concerning individual and average high school salaries in the cities.

The average salaries of men principals in villages are as follows: 241 college graduates, $1,104.52; 36 holders of State certificates, $905.75; 242 normal graduates, $897.65; 49 non-graduates, $798.36.

The average salaries of women principals in villages are as follows: 3 college graduates, $916.66; 2 holders of State certificates, $875.00; 11 normal graduates, $763.63; 7 non-graduates, $597.00.

The average salaries of other men than principals in villages are as follows: 30 college graduates, $770.07; 5 holders of State certificates, $735.60; 12 normal graduates, $585.92; 10 non-graduates, $705.50.

The average salaries of other women than principals in villages are as follows: 360 college graduates, $531.97; 37 holders of State certificates, $547.43; 464 normal graduates, $466.76; 142 non-graduates, $447.60.

In schools maintaining academic departments, outside of the cities, there are 819 teachers who divide their time between the academic and elementary grades. The average number of teachers to a high school in the State is 5.2. In the city high schools it is 25.6. In the village high schools it is 2.8. The percentage of college graduate and State certificate teachers in the city high schools is 72; this percentage in the villages is 43. The average salary of a man principal in the villages, $977.37. The average salary of a woman principal in the villages, $742.56. The average salary of men assistant teachers in the villages is $716.95. The average salary of women assistants in the villages, $490.43.

Now, I dislike the agitation of the salary question by teachers. I believe in labor unions. I believe a union of teachers for other purposes than mutual improvement and the interests of education would be alike unwise and fundamentally vicious. I hold any combination between teachers who are employed by the public and stand for all the people, and certainly any combination of teachers with some other combination which operates through politics, to be both utterly repugnant to the essential spirit of the schools and abhorrent to the vital relation which teachers sustain to the politics. I have entire confidence in the justice of the people concerning the teachers.

Therefore, I am warranted in saying in a paper that has been prepared not only for you but more particularly for circulation among the members of the school boards and others specially interested in the secondary schools, and that I hope may be helped on its way by the courtesy of the local newspapers, that the salaries of the teachers in the high schools are, speaking generally, seriously inadequate to the demands of the service. They are unjust to the teachers now in service. They do not give sufficient encouragement to remain in and advance in the service. They are insufficient to attract the most foreful characters and to induce the liberal preparation which the service demands. There are hundreds of college graduates, and others, with years of teaching experience in these high schools, who have spent from

fourteen to eighteen years and much money in preparation, who are receiving compensation which dwarfs the schools and hinders the advance which the common interests demand that they shall make. If the men and women who are members of boards of education would be of real service to their people, let them exact the highest competency in the high schools, and pay competency the compensation which will attract it.

There is one question which boldly stalks out of our figures. Some wretch has already seen it and I must neither ignore it or pass it without comment. The preponderance of college graduate high school teachers is overwhelmingly in the cities. Why do not the cities overwhelm the villages in the State examinations? I have beliefs about it. There is not time and it is not worth while to urge them now. I would be glad to hear what our good friends in charge of the city schools would say, and I would be particularly delighted to hear the observations which our distinguished friends, the presidents of the colleges and universities, may be disposed to make about it. But I entertain no doubt of this: the village high schools do not stand up in the examinations because of lack of college-trained teachers, but in spite of that fact. If the villages could have more thoroughly prepared teachers, with no added conceits and no loss of earnestness, the cities would be simply paralyzed with the necessity of finding excuses. Apparently they stand in need of some excuses as it is.

Now, let me guard against erroneous deductions and unnecessary correspondence. I have omitted the academies from my calculations for convenience but that implies nothing against them. I have not advised the removal of those who are not college graduates from the faculties of high schools. Nor have I laid down a hard and fast rule that no one without a degree shall ever be appointed to such a faculty. I have not advised the removal of women principals of high schools. On the contrary, the women who have won such positions must be specially capable and deserving. I have been speaking in general and looking to the future. I have declared some policies which ought to be observed by Boards of Education in the future management of these all-important schools. And I hope they may be observed in good conscience, without arbitrary harshness, and without injustice to any.

But let us work together in good-natured rivalry, and in honest local pride, and in genuine general endeavor. We have it in our power to do something very substantial for a splendid State. Let us show what a uniformly excellent system of high schools can do for that State. And let us make a system, which will give trend and mellowness to the swift life of the cities, which will bedeck all the hillsides and enrich all the valleys of the Empire State, and which the intelligent patrons of education everywhere must involuntarily look to as a model.

## THE "Y. M. C. A."

THE Young Men's Christian Association is an organization of world-wide influence for the best good of men, especially of young men. Its sister organization for the aid of young women is only less widely known and helpful. Both are non-sectarian in religion, but hold constantly in view the truest and best Christian manhood and womanhood.

We have recently been deeply impressed by a letter from Mr. Thomas K. Cree, an old school boy friend of Lancaster High School days—perhaps the most successful of them all—whose life of intelligent devotion to the interests of this great work has been blessed in extraordinary degree. He has for some years been secretary of the Army and Navy Department of the Y. M. C. A., with headquarters at No. 3, Twenty-ninth Street, New York, and has been driving this line of the work with his accustomed vigor. He says in the letter to which we have referred:

"As we come to the close of the year we are impressed with the opportunity offered us in the thirty-four Post Exchange Buildings, erected at army posts at a cost of $2,000,000, of which I wrote you. There are from 1,000 to 5,000 men at each of these posts, and they are dependent on us for all helpful influences. We have occupied nine of them and are ready to take up three more, leaving twenty-two unprovided for. We wish to offer our 'boys in blue' the advantages that a city association offers young men. We are now doing a better work for our 100,000 soldiers and sailors than we have ever done before. We have opened up work on the line of the Panama Canal, seven buildings are being erected by the government for our work, and the 5,000 American young men now there, and the larger number who soon will be there, will have such influences around them as will help them to lead clean, manly lives while engaged in this grand national undertaking. We entered the month of December with a large amount to secure before we can close the year free of debt as we

have all previous years, and I ask as generous a contribution as you can give us for this important department for 1906. God is greatly blessing our work and we need your help.

"I send a table which I prepared a few days ago showing the religious status of our non-religious colleges. Many years ago there were very few professing Christian students in American colleges. It is said there were less than ten at Yale and other institutions showed no larger number in proportion to their attendance. At that time very few of the faculty were professing Christians, now it is the exception where they are not Christian men. Data gathered with care indicates that less than ten per cent. of all the young men in the country are church members: carefully collected statistics show that fifty-eight per cent. of the students in our colleges, universities and professional schools are members of evangelical churches.

"The following illustrations of Christian life in these institutions, none of which are denominational, are from all sections of the country. The first column of figures shows the number of students, the second the number of professing Christians, and the third the number of members of the Young Men's Christian Association, and the fourth the number in volunteer Bible classes.

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|---|---|---|---|---|
| Yale | 3208 | 1900 | 655 | 465 |
| Cornell | 3052 | 2000 | 750 | 260 |
| Princeton | 1384 | 950 | 814 | 375 |
| University of Pennsylvania | 3558 | 1779 | 400 | 400 |
| University of Virginia | 725 | 440 | 386 | 165 |
| University of N. Carolina | 662 | 477 | 145 | 181 |
| University of Ohio | 1600 | 960 | 479 | 509 |
| University of Illinois | 2011 | 974 | 402 | 620 |
| University of Michigan | 3700 | 2400 | 500 | 200 |
| University of Minnesota | 1900 | 900 | 464 | 361 |
| University of Iowa | 1241 | 496 | 342 | 507 |
| University of Missouri | 1537 | 1000 | 347 | 261 |
| University of Wisconsin | 2800 | 1120 | 308 | 238 |
| Kansas State Agricultural | 1040 | 520 | 270 | 376 |
| Oregon State Agricultural | 400 | 80 | 61 | 104 |
| West Point | 463 | 201 | 396 | 213 |
| Annapolis | 650 | 325 | 250 | 75 |
| University of California | 1450 | 696 | 269 | 187 |
| Stanford University | 1000 | 450 | 177 | 131 |

"When the associations were organized in the last two there were not church members enough among the students to provide officers for them. During the past eight years the number of students in Bible study has increased in McGill University, Canada, from 17 to 291; University of Toronto, from 57 to 518; Harvard University, from 19 to 272; University of Pennsylvania, from 12 to 400; Ohio State University from 19 to 509; University of Illinois, from 55 to 560; and the University of Wisconsin, from 23 to 250. The number of students in Bible study classes has increased in the past ten years from 6,131 to 33,157, and in mission study classes additional during the same period, from 2,156 to 16,000."

A very interesting article on "The Young Men's Christian Association of To-day" presents the varied work of this organization and its immense field as follows:

A generation ago the Young Men's Christian Association was commonly regarded as a society whose chief purposes were preaching and prayer. To-day almost everyone knows it better—knows it as a powerful organization that works for the good of society in a hundred different ways, all of them highly practical. So multiform is the Association of to-day, in so many fields are its vast energies at work, that it is not easy to define or describe it in a sentence. An intelligent foreigner might well inquire, "What species of organization is this? Is it a real estate corporation, a gymnasium, a university, a church, a hotel, or a recreation club?"

You may call it any one of these, and give good reasons. For instance, in North America alone it owns thirty-one million dollars' worth of land and buildings. Its yearly income is more than four million dollars. It has more than five hundred club houses, enough to house the whole population of a city like Pittsburg. Every week, on an average, it puts up a new building!

Look at it from another point of view, and you will find that it has more than thirty-three thousand students in its schools, about as many as the eight biggest universities in America can show. Its diplomas are accepted by a hundred colleges. Plainly it should take rank as a university, and a most practical one, for it trains its students in useful trades and finds them employers when they graduate. Last year it gave away to soldiers and sailors seventy-five tons of books and magazines.

Give this many-sided institution another twist, and it becomes the greatest school of physical culture in the world, operating five hundred and seventy gymnasiums with a hundred and thirty-four thousand pupils. It is the foremost promoter of clean sport. When it takes hold of a young man it hardens his backbone and tightens up his muscles, physically as well as morally. For scientific body-building its instructors are generally admitted to be the best. "They are the finest body of specialists in physical training in the world," says no less an authority than Dr. Anderson of Yale.

Seventy thousand men and boys belong to its Bible classes, and the annual attend-

ance at religious meetings is over five millions. If the men will not come to it, it goes to the men. It holds short dinner-hour meetings for workmen in the quarries of Vermont, in the lumber camps and cotton mills of the South, and in the mines and steel plants of Pennsylvania.

Examine this institution still further, and you will discover that the railroad departments alone furnish over a million lodgings, a like number of baths, and nearly three million meals in the ordinary run of a year's work. It owns farms, islands, house-boats, tents and gipsy wagons. Some nine thousand men and boys summered last year in its country camps. In fact, the Association is a young man's world, with almost everything in it that a young man needs, from the day that he earns his first dollar until he marries and makes a home of his own.

The American spirit of democracy has full swing in the Associations. Every branch is independent and self-governing. There is no imperialism. There is no cut-and-dried set of rules. The only universal order is "keep out of the ruts." The man who believes that the Young Men's Christian Association is merely a religious institution where he would have to go through a sixty-minute prayer meeting to get a ten-minute bath, has not been inside one of its club-houses for at least ten years. To-day it is more than up-to-date. It is years ahead of the calendar. In educational matters it has become an experiment station, making new roads for the schools and colleges. For instance, here is a typical bright idea, put into practice in New York. In a club of boys is hung the map of an imaginary town, called Collegeville. Every boy is supposed to be a resident. He has a house and a place of business. A full set of town officials is elected, bonds are issued to provide for improvements, and public franchises are sold to the highest bidder. In one club this game of citizenship has been running for two years with all manner of exciting complications. Boston, New York, and a dozen other cities have schools for chauffeurs, in which, no doubt, the students are taught the rare and difficult art of going slow. Troy has a class of ten nationalities learning American history. New York has a hundred-thousand dollar building for Frenchmen only. De Kalb has a school for Americanizing Finns. Denver has set on foot a "health farm." In a handsome park of sixty acres it has a town of tents, so that the weak-lunged young men who have climbed to Denver in search of pure mountain air may sleep out-of-doors and recover their strength.

You will find no fads or frills. There is no class of Byzantine architecture or post-Hegelian philosophy. The Association deals with flesh-and-blood young men who are battling in a world of rough realities. It is as practical as a load of bricks. "What I like about your work," said President Roosevelt, "is that you combine religion with common sense."

No matter where a young man goes, the Association is on his trail. He will find it among the paper makers of Maine, the coal miners of Pennsylvania, the quarrymen of Vermont, the cotton mill workers of the Carolinas, and the gold miners of Alaska. The latest idea is the movable Association, which follows the lumber camps. The average secretary is a sleuth. He tracks his prey to its hiding-place. Every week little meetings are held in a flagman's shanty, an engineer's caboose, a coal mine, a battleship, or the "bull pen" of a street-car barn.

Sometimes the Association follows the flag; sometimes it goes ahead. Not long ago, in a blaze of missionary enthusiasm, it took forty of its young men and sent them as advance agents into ten foreign countries. It is in Cuba, with President Palma as a charter member; and in Hawaii and the Philippines. About three hundred Americans and natives enter the Manila building every day; and agents travel through the camps scattering books and magazines among the homesick boys. "Pay-day to-morrow. Come over with a talking machine," is a message often sent by army chaplains to the Manila Association. And so many a young man is amused and reasoned with, until his self-respect is stiffened and the danger-line is crossed.

When the Russo-Japanese war began, the Young Men's Christian Association asked permission to accompany the Japanese army. "No," said the minister of war. "We need no missionaries." After some days he changed his mind and allowed six secretaries and six native helpers to go to the firing line. From the first these men with the four mystic letters on their caps became popular with the army. Concerts were given every night with talking machines and music boxes. "Manhattan Beach" was the favorite tune. Hundreds of letters were written for illiterate soldiers. The great Kodoma visited the Association tents and expressed his approval, and soon various generals were wiring, "Send more of your men!" A check for five thousand dollars was received from the Mikado, and to-day the Association is an established Japanese institution, tested under fire and proved to be true blue.

The Association stands for sanity, temperance and goodwill in all things. "Spirit, Mind and Body" is its motto. While financiers are consolidating banks and amalgamating corporations, it plods ahead with its gigantic scheme of building up a world-wide "Young-man trust." It has powerful and generous friends, and a reputation for social usefulness which is yearly increasing. "If I had my life to live over again," said John Wanamaker, "I'd give twice as much to the Young Men's Christian Association. It is an investment that never disappoints."

### THE Y. M. C. A. WITH SOLDIERS.

Tommy Atkins is changing his habits since the Association in England has gone along with him into the summer volunteer camps. Over 4,000 of them came to one camp's big tent from sunrise to midnight in one day, and on one Sunday wrote 4,957 letters and mailed them. At the evening "sing song" they chose hymns rather than songs. Total abstinence pledges have been signed by hundreds, and this means a good deal in "Merrie England." A colonel says that now fully two thirds of his battalion are teetotalers, and attributes the change to the influence of the Association tents. The unheard-of record of no court-martials held in the camp is credited to the Association men, who kept the soldiers so busy and so well entertained between drills that they had no time or inclination for drink or deviltry.

That little sign in every Army and Navy Young Men's Christian Association building: "Have You Written to the Folks at Home?" has led to the making up of many family differences between father and son and husband and wife. And then letters from home have prevented many a man from going off and getting blind drunk. Its suggestion has led other soldiers to send money home and pay old debts.

Large numbers of soldiers who are mere boys, away too early from home influences, are kept from immoralities, drunkenness, gambling and obscenity, which pervades the air of the barracks or any place where men congregate, without restraint, by the cheer and enterainment of the Association. Purer thoughts are revived and fostered by song and sentiment in its rooms and meetings at the posts. There is a clean and Christianizing effect here as at their own homes, while "Home Sweet Home," "Where Is My Wandering Boy To-night," "Nearer, My God, to Thee," and the stereopticon word-picture appeal and wholesome sentiments of teacher and speaker have made for things in the life of men, which have been manly and clean, and have brought new courage and contentment to men who were forgetting the best things under hardening influences and isolation from gentle and Christian influence.

## ITEMS FROM REPORTS.

BEDFORD.—Supt. Wright: The fourth annual convention of the school directors was held in December. Out of a total of 246, 106 were present. The programme was the strongest we have ever had, and the meeting was exceptionally interesting and profitable. At the evening session Supt. O. J. Kern, of Winnebago county, Ill., gave his illustrated lecture on "Country School Problems." It proved a valuable lecture. In no sense did our county institute fall below the standard of our best institutes in the past. Our instructors were Drs. Stetson, Lowden, Hockenberry, Supt. Muir and Prof. Yoder. The sessions were well attended, the teachers were earnest and attentive, the many visitors were appreciative, and the instructors were unusually able and helpful.

BERKS.—Supt. Rapp: Local institutes were held at Millersburg, Morgantown, Friedensberg and Wernersville. The principal instructors and lecturers were Prof. James S. Grim, Prof. W. W. Deatrick, Dr. C. C. Ellis, and Supt. Rapp. The topics discussed were Simplified Spelling, Practical Elementary Arithmetic, How to Arouse an Interest in Rural Schools, and Having Respect for Authority.

CLEARFIELD.—Supt. Tobias: The annual institute was held in December. The sessions were well attended and very interesting. The opera house, with a seating capacity of 1,000, proved too small for the afternoon sessions. There were 444 teachers enrolled. The instructors were Prof. F. C. Green, Drs. W. W. Black, and Geo. L. Omwake; Prof. O. H. Yetter conducted the music. The instruction was largely along the lines of methods as applied in the practical everyday work of the school. The importance of moral training was strongly emphasized.

CLINTON.—Supt. McCloskey: We are glad to report progress in the schools of the county. One of the most successful institutes in our history was held during the month. All the teachers were present except twelve, who were detained at home by sickness.

CUMBERLAND.—Supt. Green: The fifty-third annual session of the county institute was held in December. The instructors were Drs. Fess, Rigdon, Super, Eckels, and Hefelbower. Instruction was given in history, grammar, psychology, methods, and school management. The work of the instructors was first class in every particular. The evenings were taken up by The Musical Five, Mr. Rufus Everson King, The Dunbar Company, and Hon. Philip Campbell. The attendance throughout the week was exceedingly large, which showed the popularity of the instructors and the institute. The schools visited during the month are doing effective work and manifesting general improvement.

FOREST.—Supt. Morrison: The teachers of Barnett township held their third local institute. These meetings are interesting and inspiring. The annual county institute was held in Tionesta. All but two of the teachers were present. The institute was regarded by many as the best in the history of the county. Every session was well attended, and the evening attractions drew crowded houses; 260 course tickets were sold, and $154.88 was realized in excess of expenditures. Plans are being made for a summer normal school to be held at Tionesta during May and June. Public spirited men are at the head of it and it will no doubt be a success.

SUSQUEHANNA.—Supt. Stearns: Hallstead borough school building was burned down on the night of October 12. It was insured for $5,000; will cost $12,000 to rebuild. The county institute was well attended, as was also the directors' meeting held during the same week. Notwithstanding the stormy weather, 38 per cent. of all the directors of the county were present. Teachers' meetings were held at Friendsville, Rush, Springville, and Montrose. These were all conducted in an informal way, and the teachers present responded well.

TIOGA.—Supt. Longstreet: The thirty-ninth annual session of the teachers' institute was held at Wellsboro. The instructors were Drs. Howerth and Rigdon, Hon. Emerson Collins, Lena M. Dickinson, Louise Van Valkenburg, and Prof. S. H. Mountz. The evening lectures and entertainments were, "Panama in Picture and in Prose," by Dr. E. B. McDowell; S. Y. Gillan, humorist; Kellogg-Haines Singing Party; and the "Angel's Lily," by Russell H Conwell. During the week a meeting of the directors' association was held. On account of stormy weather and bad roads the attendance was not as large as expected. A good programme was provided, however, and the enthusiasm of those present made up in large measure for lack in numbers.

WARREN.—Supt. Gunning: The dedication of the "White Memorial School" at Youngsville and the transfer of the beautiful building to the school board was a notable event. It is a brick structure, two stories in height, and finely equipped for the purpose of a modern high school. The cost was about $30,000. A profitable local institute was held at Bear Lake. Good papers were read and ably discussed by the many teachers present. The fourth annual convention of our school directors was held December 14, with sixty-three present. The most noteworthy action taken was a resolution urging our representatives in the Legislature to do their utmost to secure the repeal of the vaccination law. This action is due to the tardiness of the state authorities in supporting the directors and teachers who have been enforcing the law, but who, without such support, are harming the schools' interests by attempting to enforce the law. Our county institute was good; the attendance was 95 per cent. of all the teachers.

WAYNE.—Supt. Hower: Enthusiastic and helpful educational meetings were held at Aldenville, Bethany, Damascus, and Sterling. They were well attended, and the subjects were well discussed. Rev. McMillan delivered a forceful lecture at the Sterling institute, on "Consolidation of Rural Schools." All but forty-four schools have been visited and the work has been slightly above the average.

ARCHBALD.—Supt. Kelly: Grammar was the subject for discussion at our local instiute. One hour's work given to this subject delighted those present. The schools of the third ward, with an enrollment of 98 pupils, have been closed since December 3, on account of diphtheria, which is confined to that portion of the town.

ERIE.—Supt. Missimer: After enforcing the vaccination law for one month, the board, on a test case to be carried up to the Supreme Court to determine the exact relation of the unvaccinated child to the compulsory attendance law, decided to obey the latter law, with an increase in the enrollment of about 1,000.

FRANKLIN.—Supt. Lord: The principal instructors at the county institute were Dr. Kelly, president of Earlham College, Richmond, Indiana, and Dr. Ingler, president of Normal School, Muncie, Indiana. Both gentlemen gave thorough, practical, common sense talks that even the inexperienced teacher could easily understand and assimilate. The keynote of the institute, sounded by the management and the instructors, was—instruction first, entertainment second.

JEANNETTE.—Supt. Shank: One teacher resigned during the month, going to Turtle Creek, where she receives $70 instead of the $50 she received here. We must increase our salaries here, or lose our better teachers. Pittsburg and vicinity pay larger salaries and they continually draw from the smaller towns. Our teachers are doing well this year. They are apparently in earnest and have the welfare of the pupils at heart.

MAHANOY TOWNSHIP (*Schuylkill County*).—Supt. Guinan: Two additional primary teachers were elected. The school board has decided to build additional room for schools containing two primary teachers.

NEW BRIGHTON.—Supt. Green: Prof. H. E. Stone, of Corry, has been elected science teacher in the high school. Since the opening of school about $100 has been expended in the purchase of physical apparatus.

OLD FORGE.—Supt. Coyne: We were forced to reduce our night school corps of teachers through lack of attendance. The employers of labor thwart our best plans to have the boys under age attend day school, and the poor little fellows work too long to be on time for night school. It is consoling to know that in one small silk factory in our borough there is not one child under the legal

TAYLOR.—Supt. Lloyd: At our last teachers' meeting Supt. Hoban, of Dunmore, was present and gave an excellent talk on "Language." He offered many valuable suggestions concerning language work in the various grades. Our teachers have organized a reading circle, with a view of perfecting themselves in the knowledge of the classics and the professional subjects. They meet once every two weeks and are manifesting much interest in this work, which is under my leadership.